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INDIAN FOOD PACKER

Vol. XX No. 4

JULY—AUGUST 1966

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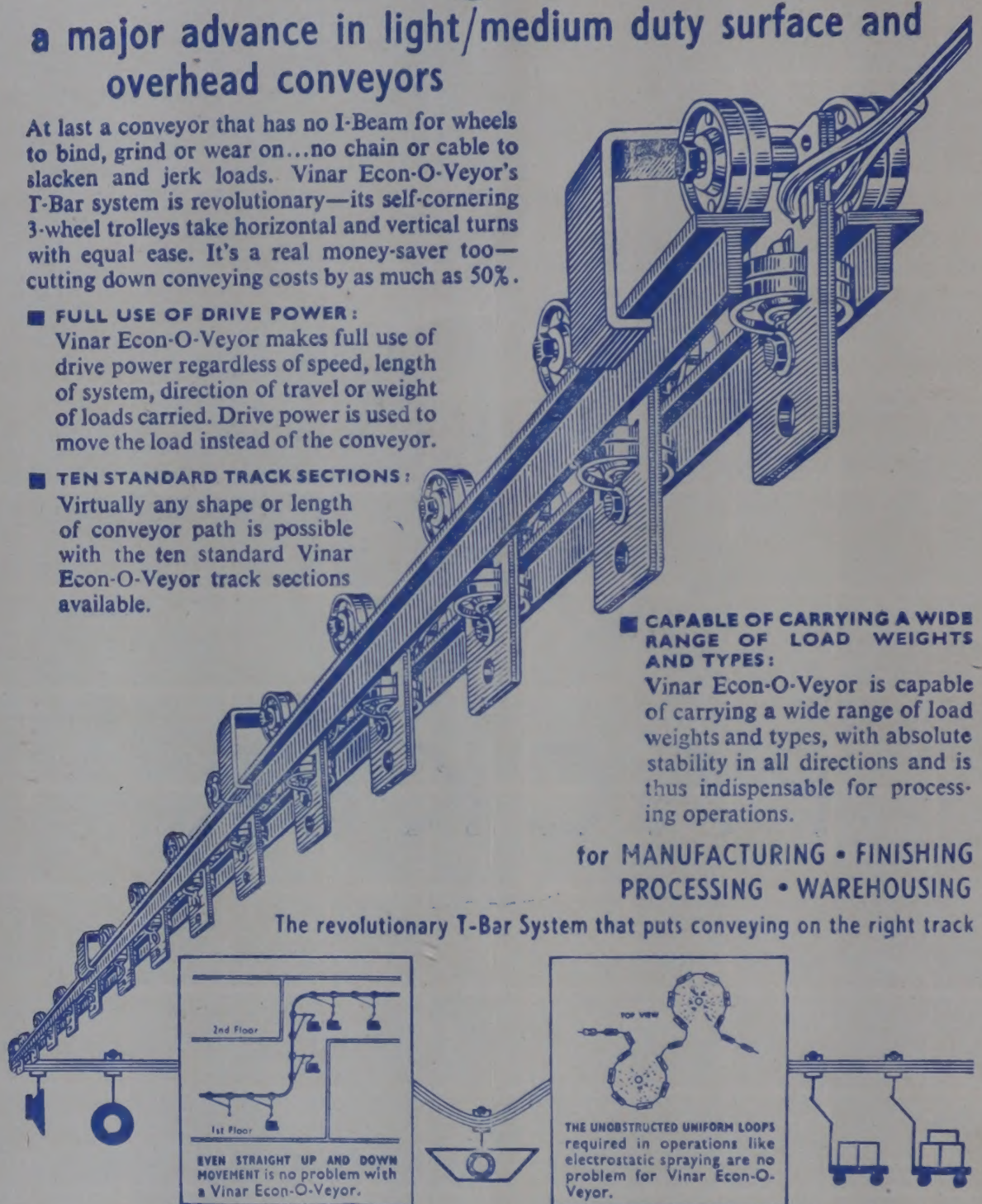

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Indian Food Packer

Journal of the All India Food Preservers' Association

Regd. No. R.N. 7643/57

July—August 1966

Vol. XX No. 4

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Editor
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Established: 1946
Published Bimonthly

By
THE ALL INDIA FOOD PRESERVERS' ASSOCIATION
8-B Chakraberia Lane, Calcutta-20

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Subscription: Rs. 10 per year, *Foreign* 17sh., Rs. 2 per copy, postage free.

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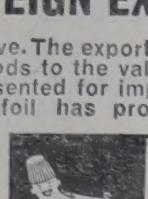

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Editorial

We are all talking of raising the exports of non-traditional items by leaps and bounds, but are not taking steps necessary to achieve this object. Exports are a must under the present circumstances when we are short of foreign exchange. We must, therefore, take immediate steps to do everything that is feasible to attain this.

Such items as Fruits and Vegetables, Jams and Marmalades, Squashes etc., can be exported in increasing quantities, provided we allow sufficient amount of publicity by Press, Radio, TV etc. For this purpose, the Government devised a scheme under which they are to contribute 33 per cent and the balance 67 per cent being borne by the party advertising his own brand. The proposals for brand publicity by several firms are lying with the Government for the last eighteen months and more, but the Government has not thought fit to come to a decision at all yet. The industry does not know the reason for this, especially when other non-traditional items are being advertised and towards these advertisement expenses, the Government is contributing 33 per cent. It is all right to talk of exhibitions. Once a dealer sees an item in an exhibition, he is inclined to buy it, but he cannot push it in the market unless the public at large know about the product, however good it may be. It is, therefore, necessary that the Government decides the question as soon as possible and fix up a limit to the amount a firm can spend towards publicity. It is a must if we want to increase our exports.

Cost of our tin cans is the highest in the world and this is due to import and excise duties levied by the Government. The Government had laid down that the extra amounts thus levied will be refunded by way of drawback. While the Government has declared its intention, they have not translated this intention into practice so far. The drawback on tinplate is given at the rate of Rs 419 per ton, whereas it should have been practically double the amount. All efforts and representations to Government to persuade them to translate their intentions into action have met no response at all so far. With the devaluation, our costs of cans have increased and to place the industry on a par with the foreign countries it is a sheer necessity. The result of this discrepancy because of the Government not allowing full drawback on tinplate is that our products are being outpriced in the foreign markets and it is essential that these should be placed on a par with other advanced countries. If the Government is not prepared to consider this rational request, the industry has no other option but to request Government for export subsidy.

Eye appeal and appearance is a very important factor in all the sophisticated markets of the world. Products manufactured by inefficient and outmoded machi-

nery cannot compete effectively in the outside markets against products manufactured by automatic machinery. The industry has been pleading with the Government for the last so many years that they allow a nominal sum of Rs 20 lakhs per year with a view to rationalise and modernise this industry, but all these appeals have so far fallen on deaf ears. The industry is prepared to contribute its mite to increase the exports, but in the present state of outmoded machinery, they cannot produce the qualities acceptable to foreigners. It is, therefore, essential that this small amount be allowed to the industry at least for the next three years to enable the industry to rationalise and modernise its factories so that the products coming out can compete effectively at least in the matter of eye appeal because that is the only thing lacking at the moment, as the know-how is already there.

Give the industry the tools and it will do the job.

K. U. PATEL

A NOTE ON THE EFFECT OF GAMMA RADIATION ON SOME CONSTITUENTS OF APPLE PRESERVE AND GLASS CONTAINERS

S. BHATTACHARYA AND J. C. ANAND

(*Indian Agricultural Research Institute, New Delhi 12*)

Apple preserve is subject to post-process spoilage by the osmophilic group of yeasts. While investigations on the use of ionizing radiations for the cold-sterilization of heat-sensitive foods have been gaining in momentum in some of the western countries, it is still in its infancy in our country. In this note, some preliminary observations on the effect of gamma radiation on some of the constituents of apple preserve are reported.

Apple preserve homogenate (prepared by blending the fruit and syrup) having the initial composition of 70° Brix (T.S.S.), 17.5 per cent reducing sugars, 0.21 per cent acidity, pH 4.0, with normal light yellowish brown appearance and good flavour was filled in 16 oz. (DGW) glass jars and irradiated with 90, 180, 315, 405 and 496 kilo-roentgens of gamma rays from a 200 curie Co^{60} source. The treated samples were analysed for ascorbic acid, reducing sugars, acidity and pH, and changes in colour and flavour of the product were recorded.

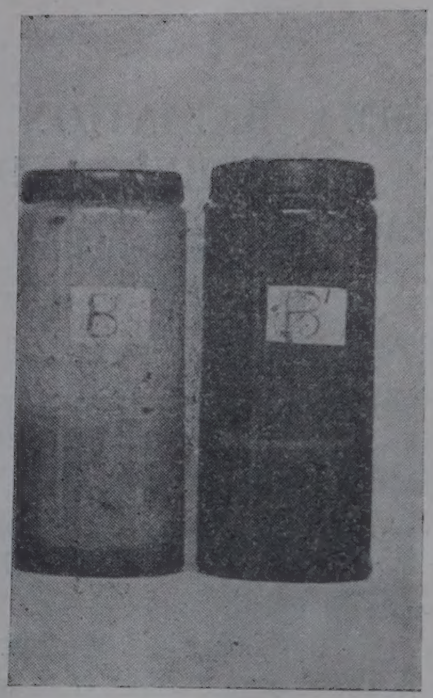
There was much loss of ascorbic acid at all the dosages investigated, being maximum (57.7 per cent over the control) at the highest dosage and minimum (13.6 per cent) at 90 kilo-roentgens. In the case of sugars, increased dosages of irradiation resulted in a progressive increase of the reducing sugar content from 0.0 to 21.5 per cent. Similar observations have been made by some earlier workers. Loss of ascorbic acid has been attributed possibly to its oxidation to 2:3 di-keto gluconic acid and dehydro-ascorbic acid and the increase in reducing sugars to hydrolysis of sugars. There were no measurable changes in titrable acidity or pH.

The colour of the irradiated product changed from the normal light yellowish brown to a blackish colour (Fig. 1), the intensity of darkening increasing with increase in the dosage. Such deterioration of colour has been attributed by some workers to the formation of reductones.

Fortification of apple preserve and the homogenate with 0, 100 and 300 mg. per cent of an antioxidant (ascorbic acid) prior to irradiation did not materially alter the intensity of darkening of the product.

The flavour of the product also was very much adversely affected by irradiation. The deterioration of flavour was perceptible even at the lowest dosage. Increase in dosage resulted in the increased development of a characteristic 'mousy' flavour. The association of enzymes in the development of 'off' flavour in irradiated food products, as observed by some workers, is not applicable in the present case, because the product was previously canned and heat sterilized to avoid any microbial activity.

A point of additional interest was the effect of irradiation on the glass container. The glass containers became tinged to a smoky black colour (Fig. 1) which could not be washed away with detergents. Testing of glass containers of different composition by irradiation would, therefore, be of much interest.



During storage of the irradiated samples at room temperature for about an year, the intensity of the dark colour and the 'mousy' flavour became progressively less pronounced, but not to the extent to render the product acceptable to the consumer.

The observations made so far do not seem to be encouraging in regard to irradiation of apple preserve.

Fig. 1. *Effect of gamma radiation on apple preserve homogenate*

B—(Control)—Showing normal appearance of the contents.

B^1—(Sample, irradiated with 425,000 M)—Showing the deteriorated, blackish colour of the product and smoky black colour of the glass container.

FLAVOUR ENHANCERS

S. HEMA MALINI AND B. S. BHATIA

(*Defence Food Research Laboratory, Mysore*)

1. Introduction

Since 1909, monosodium glutamate (MSG) has been used widely to enhance the flavour of food products. The epoch-making discovery of the 5'-ribonucleotides has unfolded for the food industry new chapters for flavour modification.

With the increasing need to conserve foods, the flavour enhancers may provide a solution and be a useful tool to the food industry and food technologists for the production of improved food products.

2. Monosodium Glutamate

Of the two isomers D- & L-, only L-glutamate which is a natural component of protein is effective, and is widely recognised and applied as a flavour enhancer. MSG has an appetising property[1]. It accentuates flavour and produces a pleasant, salty, yet sweet persistent stimulation of the taste buds[2].

Food flavouring and preservative compositions containing MSG have been patented[3, 4]. The flavour intensifying properties of glutamate find the greatest application in canned and frozen vegetables; in canned, frozen and processed meat, poultry and fish and in frozen and precooked meals[2, 5-14]. However, glutamate enhances the browning reaction. Thus, in adding MSG to foods, a reactant in the undesirable browning reaction is introduced. Publication of the papers of the symposium on MSG held in Chicago covers a wide range of the subject[5-11].

3. Maltol

A mixture containing controlled amounts of Maltol (3-hydroxy 2-methyl 4-pyrone) used with glutamate enhances the flavour and odour of seasoned foods[15] (especially soups, meats, fish and vegetables). Maltol, sold as veltol, has been successfully used in confectionery products, desserts, baked goods, dairy products and beverages[16].

Papers have appeared dealing with the use of Maltol as flavour enhancer. Beattie's paper[17] includes fifty references and Griffin[18] cites examples of its use in chocolate and candy products.

4. The 5'-Nucleotides

Recently, the 6-hydroxy purine ribonucleoside 5'-monophosphates especially 5' inosinate (IMP) and 5'-guanylate (GMP) have been recognised as flavour potentiators. They have found better application in the food industry because of their better activity in flavour modification and seasoning properties[19].

The highlights of their flavouring effects[20, 21, 22] are:

(1) They have specific flavouring activities not provided by MSG,

(2) They can modify flavour at very low concentrations,

(3) Their threshold levels are lower than that of MSG,

(4) They create the sensation of increased viscosity in liquid products, and

(5) They suppress undesirable flavour notes and enhance the desirable ones.

Papers dealing with the history and development[23], distribution, application, physical properties and assay of nucleotides[24], flavour modifying properties[25, 26] and home test by consumers of the flavour effects of disodium inosinate in dried soup[27] have appeared.

The use of nucleotides, their salts and amides have been patented[28, 34]. Some of the patents[28, 29, 31] describe the use of the compounds along with MSG. In combination, MSG and GMP (or IMP) effect a synergistic action. GMP is about four times as effective as IMP in the synergistic action. Takeda Chemical Industries, Japan, are now distributing a one-to-one mixture of disodium inosinate and disodium guanylate under the trade name of Ribotide. They have also developed a seasoning product, EE-CHE-BAN, which contains a mixture of disodium inosinate and disodium guanylate in MSG. This mixture is an effective seasoning for a variety of dishes[23]. Mixtures of (1) disodium inosinate and disodium guanylate, and (2) MSG, disodium inosinate and disodium guanylate are sold by Merck and Co. as Mertaste and Mertaste[5] respectively.

Mixed seasoning crystals are obtained by either (1) using crystals of 5'-nucleotides to seed aqueous solutions of sodium glutamate[35] or (2) by heating MSG in aqueous solutions containing 5'-nucleotides[36].

A variety of foods and dishes for which disodium 5'-ribonucleotides are widely useful have been listed[24].

The flavour profile method[37] has been used for the evaluation of disodium inosinate.

5. Other flavour enhancers and flavour enhancing processes

(*i*) *Soya Products*—Many attempts have been made to improve the flavour of soya products. Soyabean oil has a peculiar odour and the flavour deteriorates on storage. The oil is subjected to partial hydrogenation in the presence of chromium-copper-manganese dioxide catalyst to improve its flavour and shelf-life and to make it acceptable widely for cooking and salad dressings[38].

The flavour of soya flour is improved[39] by digesting it in an acidified aqueous solution, mixing the digested flour with a water miscible solvent and separating from the mixture a soyabean flour free of beany or bitter flavour and odour as well as substantially free of residual oil.

(*ii*) *Baked Goods*—Lipoxidase of soya flour[40] and enzyme peroxidisable fats[41] and an increased proportion of non-fat dry skim milk[42] have been used to improve the flavour of baked goods and continuous-mix bread.

(*iii*) *Coffee and Juices*—The flavour and clarity of coffee, juices and soft drinks are improved[44] by adding mixtures of polymeric phosphates with alginate or methyl cellulose emulsifiers. DL-alanyl-DL-alanine or similar compounds are added to coffee and tea to improve the flavour[45].

Two patents describe the improvement of juice flavour by dialysis[46, 47]. The juices are subjected to electro-dialysis to improve the flavour by alternation of pH.

Four patents[48-51] describe coffee products of improved flavour.

(*iv*) *Dehydrated Foods*—The effect of flavour enzymes on a variety of processed foods and on flavour precursor solutions has been evaluated[52]. Dehydrated food products are given improved flavour by incorporating

a minor amount of the foodstuff which has been dehydrated in the absence of enzyme-destructive heating, thus preserving its flavour developing enzymes[53]. The flavour lost during processing is made up of volatile constituents which owe their origin to the action of enzymes on non-volatile precursors. If the processing inactivates the particular enzymes concerned, they can be replaced from other sources and the characteristic flavour regenerated from the surviving precursors. The practical aspects of the action of the flavour enzymes on dehydrated cabbage has been dealt with[54]. Hewitt and co-workers have worked on the flavour enzymes and the enhancement of flavour by using the enzymes on the precursors[55, 56, 57].

The flavour and tenderness of freeze-dried chicken[58] is improved by enzymes, particularly Ficin.

Flavouring oils are used to enhance the flavour of dehydrated juices[59].

(*v*) *Meat, Poultry and Fish*—Processes for improving the flavour of meat by antimortem injection of Thamnidium and Aspergillus[60] and for aging and improving the flavour of cooled meat by spraying a Thamnidium solution and a broad spectrum antibiotic solution[61] (Terramycin) have been patented.

Enzyme inactivation of frozen beef prior to irradiation gives a product with improved flavour and texture[62]. The flavour of poultry meat is enhanced by injecting the enzyme hyaluronidase and a seasoning agent into the fowl's vascular system prior to slaughtering[63].

Amino acids such as arginine, lysine, ∝-alanine, glutamic acid and aspartic acid, when added to chicken broth at proper level, improve the flavour[64].

The flavour of canned fish and meat products is improved by the incorporation of sugar fatty acid esters along with polyphosphate salts[65].

(*vi*) *Confectionery*—Citrus and berry flavours are enhanced with food acids, i.e. citric, tartaric, malic, etc[66].

(*vii*) *Condiments*—A flavour enhancing condiment prepared from an aqueous yeast extract has been patented[67].

(*viii*) *Dairy Products*—∝-acetyl acetic acid improves the flavour of butter[68].

By proper selection of culture organisms, addition of bacteria to milk for cheese enhances the development of flavour of desired characteristics[69].

(*ix*) *Miscellaneous*—The flavour of prepared foods is improved by the addition of 0.1 to 0.6 per cent L-lysine L-glutamate[70].

The enhancement of flavour by fumaric and adipic acids has been reviewed[71]. These two acids are effectively used in desserts, confectionery products and beverages. This paper gives a list of U.S. patents dealing with the use of fumaric acid in foodstuffs.

Malic acid is superior to citric acid in its flavour enhancement properties[72]. Malic acid can be substituted for citric acid in regular and dietetic carbonated beverages and enhances the flavour.

Sodium cysteine-S-sulfonate is incorporated into foodstuffs to improve the flavour.[73]

The flavour of synthetic protein fibres and simulated food products prepared therefrom, can be greatly improved by treating the precipitated filaments or fibres with sulphur dioxide[74].

Addition of 2 per cent sucrose to commercially processed dill pickles improves the pickle flavour quality and enhances the spicing flavour[75].

Use of Nisin[75] (permitted in dairy products, canned products and certain other specified foods) enables the use of lower temperatures and/or shorter times for the

process. Consequently, there is an improvement in flavour.

6. Conclusion

The 5′-nucleotides and their combination with monosodium glutamate have come to the forefront as effective flavour enhancers and are attaining world-wide recognition. Improved availability of these compounds is likely to stimulate further developments of their uses.

The work on the application of enzymes to dehydrated foods is of special significance. There is need to do intensive work on the inactivation of enzymes by methods other than blanching at comparatively high temperatures so as to retain better flavour. This aspect is particularly important with increasing use of HTST processing methods.

REFERENCES

1. Lea, C. H., *Chem. and Ind.*, 1964, (8), 1406.
2. Nair, J. H., '*Food Dehydration*', Vol. II (1964), 448, The AVI Publishing Company, Connecticut.
3. Kawamura, Y., Takenouchi, K., Tamuki, T., Satani, M., Sakata, U. and Hanaoka, T., Can. Patent No. 666,102, Feb. 7/63.
4. Pittman, L., Can. Patent No. 665,817, Feb. 7/63.
5. Cairncross, S. E., *The effect of MSG on food flavours* in '*MSG, a symposium*' (March 4, 1948), 32, Chicago, Ill.
6. Nair, J. H., '*Evaluation of glutamate in food specialities*', *ibid.*, 48.
7. Fellers, C. A., '*The use of MSG in seafood products*', *ibid.*, 44.
8. Girardot, N. F. and Peryam, D. R., '*MSG's power to perk up foods*', *ibid.*, 52.
9. Snavely, *Use of Glutamate in precooked frozen foods* in '*MSG, a second symposium*' (June 7, 1955), 23, Chicago, Ill.
10. Blish, M. J., *An Industry-wide Research Programme, ibid.*, 49.
11. Sjostrom, L. B., Cairncross, S. E. and Caul, J. F., '*Effect of glutamate on the flavour and odour of foods*', *ibid.*, 31.
12. Sjostrom, L. B. and Crocker, E. C., *Food Technol.*, 1948, **2**, 317.
13. Merory, J., *Food flavourings* (1960), 223, The AVI Publishing Company, Connecticut.
14. Garnatz, G., '*Flavour Research and Food Acceptance*' (1958), 199, Arthur D. Little Inc., Mass.
15. Griffin, J. M., Boachard, E. F. and Konigsbacher, K. S., U.S. Patent No. 3,106,569, November 10/64.
16. Olsen, R. D., *Food Processing*, 1964, **25** (1), 95.
17. Beattie, G., *Perfumery and essential oil Record*, 1964, **15**, 462.
18. Griffin, J. M., *Manufacturing Confectioner*, 1963, **43** (5), 47.
19. Wagner, J. R., Titus, D. S. and Schade, J. E., *Food Technol.*, 1963, **17** (6), 52.
20. Titus, D. S. and Klis, J. B., *Food Processing*, 1963, **24** (5), 128.
21. Kuninaka, A., presented at the 149th Meeting of American Chemical Society, Detroit, Mitch., 5-8, 65.
22. Guardia, E. J. and Dollar, A. M., *Food Sci.*, 1965, **30** (2), 223.
23. Kuninaka, A., Kibi, M. and Sakaguchi, K., *Food Technol.*, 1964, **18** (3), 29.
24. Shimazono, H., *Food Technol.*, 1964, **18** (3), 36.
25. Kurtzman, H. and Sjostrom, B., *Food Technol.*, 1964, **18** (9), 221.
26. Shimazono, H., *Food Manuf.*, 1965, **40** (11), 53.
27. Caul, J. E. and Raymond, S. A., *Food Technol.*, 1964, **18** (3), 95.
28. Takeda Chemical Industries (Jap.), Br. Patent No. 928,776.
29. Takeda Chemical Industries, Jap. Patent No. 3467, Feb. 18/65.
30. Takeda Pharmaceutical Industries (Jap.), Br. Patent No. 933,827, June 9/63.
31. Sakaguchi, K., Kibi, M. and Kuninaka, A., U.S. Patent No. 3,104,171, Sep. 17/63.
32. Toi, B., Maeda, S., Ikeda, S. and Furukawa, H., U.S. Patent No. 3,109,741, Nov. 5/63.
33. Yasumatsu, K. and Nakao, K. (Takeda Chemical Inds., Japan), Can. Patent No. 682,923, March 24/64.
34. Ajinomoto Co Inc., Br. Patent No. 916,284, Feb. 15/63.
35. Kyowa Hakko Ind. Co., Jap. Patent No. 10394/65.
36. Kyowa Hakko Kogyo Co., Jap. Patent No. 15433/65.
37. Caul, J. F., *Adv. in Food Res.*, 1957, **7**, 5.
38. Kuwata, T., Takumi, S. and Hashimoto, T., U.S. Patent No. 3,169,981, Feb. 16/65.
39. Moshy, R. J., U.S. Patent No. 3,168,406, Feb. 2/65.

40. Kleimschmidt, A. W., Higashiuchi, K., Anderson, R. and Ferrari, C. G., *The Baker's Digest*, 1963, **37** (5), 44.
41. Higashiuchi, K., Kleimschmidt, A. W. and Ferrari, C. G., U.S. Patent No. 3,108,878, Oct. 29/63.
42. Glabe, E. F., U.S. Patent No. 3,121,013, Feb. 11/64.
43. Moriarty, J. and Nowlin, A., U.S. Patent No. 4,060,031, Oct. 23/62.
44. Ogawa, H., Jap. Patent No. 1980, Jan. 28/65.
45. Ajinomoto Co. Ltd., Jap. Patent No. 22907/65.
46. American Machine and Foundry Co., Br. Patent No. 993,132.
47. Gregor, H. P. and Kilburn, R. W., Can. Patent No. 713,507.
48. Bishop, L. P., U.S. Patent No. 3,071,470, Jan. 1/63.
49. General Foods Corporation, Can. Patent No. 654,696, Dec. 25/62.
50. Inredeco Inc., Can. Patent No. 656,891, Jan. 29/63.
51. Feldman, J. R., Br. Patent No. 907,571.
52. Konigsbacher, K. S., Hewitt, E. J. and Evans, R. L., *Food Technol.*, 1958, **12** (4), 37.
53. Morgan, A. I., *et al.*, U.S. Patent No. 3,170,803, Feb. 23/65.
54. Hewitt, E. J., Konigsbacher, K. S. and Mackay, D. A. M., *Food Technol.*, 1958, **12** (4), 37.
55. Hewitt, E. J., Mackay, D. A. M. and Lewin, S. Z., *Flavour Research and Food Acceptance* (1958), 262 and 374, Arthur D. Little Inc., Mass.
56. Hewitt, E. J., Mackay, D. A. M. and Konigsbacher, K. S., *Food Technol.*, 1956, **10**, 487.
57. Hewitt, E. J., Mackay, D. A. M. and Konigsbacher, K. S., '*Chemistry of Natural Food Flavours*' (1957), Chicago Quartermaster Food and Container Institute.
58. Hogan, J. F., *American Technology Digest, Food Manuf.*, 1966, **41** (1), 60.
59. Ponting, J. D., Stanley, W. L. and Copley, M. J., '*Food Dehydration*'. Vol. II (1964), 538, The AVI Publishing Company, Connecticut.
60. Williams, B. E., U.S. Patent No. 3,128,191, Apr. 7/64.
61. Williams, B. E., U.S. Patent No. 3,130,057, Apr. 21/64.
62. Scanlan, R. A., Schults, G. N. and Wierbicki, E., presented at the 24th Annual meeting of the Institute of Food Technologists, Washington, D. C., May 24-28, 1964.
63. Murphy, J. F. and Murphy, R. E., Swift and Co., U.S. Patent No. 3,159,489, Dec. 1/64.
64. Kazeniac, S. J., *Proceedings of the Flavour Chemistry Symposium* (1961), 44, Campbell Soup Company, Camden, New Jersey.
65. Chiyoda Kagaiku Kogyo Co., Jap. Patent No. 25641/64.
66. Merory, J., *Food Flavourings* (1960), 292, The AVI Publishing Company, Connecticut.
67. Takeda Pharmaceutical Industries, Japan, Br. Patent No. 933,828, June 9/63.
68. Netherland Patent No. 93517, 1960.
69. Kristoffersen, T., *Proceedings of the Flavour Chemistry Symposium* (1961), 213, Campbell Soup Company, Camden, New Jersey.
70. Stamicarbon, N. V., Polish Patent No. 46,432, Nov. 5/62.
71. Staff, F. P., *Food Processing*, 1962, **23**, 108.
72. Sausville, T. J., *Food Technol.*, 1965, **19** (3), 67.
73. Yoshitomo Pharmaceutical Industry, Japan, Br. Patent No. 981,054, Jan. 20/65.
74. Kuramoto, S., Westeen, R. W. and Keen, J. L., U.S. Patent No. 3,177,079, Apr. 6/65.
75. Pangborn, R. M., Vaughn, R. H. and York, G. K., *Food Technol.*, 1958, **12** (3), 144.
76. Peggy Boone, *Food Manuf.*, 1966, **41** (5), 49.

Book Review

Pickle and Sauce Making by RAY BINSTED, J. D. DEVY AND J. C. DAKIN, 2nd Edition revised and enlarged, 1962, Food Trades Press Ltd., London, pp. 274.

Since the publication of the first edition in 1939, considerable progress has been made in the technology of pickles and sauces which is indicated by the addition of 4 new chapters to the book.

The authors of the book are intimately connected with the manufacture of products covered in the book and they have first-hand knowledge of the problems of the industry. As such, their approach is from practical stand point of view.

The book is divided into 14 chapters, covering pickled vegetables, sauces, vinegar, mustard products, etc. The arrangement of material is well planned. The chapters begin with the quality and standards for raw material, followed by method of processing, equipment used in large scale manufacture, packing, labelling and marketing. The basic information offered in the book is not new to any manufacturer in the field. Incorporation of information on newer methods in processing and packing, new equipment and machinery used in the advanced countries, is informative. A number of recipes are given which will be welcomed by any manufacturer. The importance of microbiological quality control has been rightly stressed. Methods of analysis of important constituents are valuable to the manufacturer who is particular of producing standardised quality product. Though this information is available in standard books, many manufacturers may not have library facilities.

Pickle industry is not organised on sound lines in the country though the export potential is very high for the product. Books of this type help in the development of industry on the right lines. On the whole the book is very valuable as a practical guide book for the manufacturer.

M. S. SUBBA RAO

NOTES and NEWS

- *Tamarind juice concentrate*
- *Re-constitution of the Board of Trade*
- *Indian Institute of Foreign Trade*
- *Modern Groundnut Plant at Khanna*
- *Insecticide Plant*
- *Short-term course at C.F.T.R.I., Mysore*

Tamarind Juice Concentrate

Tamarind (*Tamarindus indica* Linn.) is a tropical, ornamental and leguminous tree. Its fruit, a brown pod, contains a juicy acid pulp and is used in every home in India in culinary preparations, like chutneys. It is also used in some medicines and for preserving fish.

The juicy acid pulp of the fruit contains tartaric acid, reducing sugars, pectin and proteins, and some fibre and cellulosic material. The acid and sugar contents vary from sample to sample: tartaric acid, 8-18, reducing sugars, 25-41; pectin, 2-3.5; and proteins, 2-3 per cent.

Tamarind is exported to more than 50 different countries either in the dried form or fresh crushed fruit pulp without seeds. During the year 1964-65, India exported 3776 tonnes of tamarind pulp valued 24.25 lakhs. The important importing countries were Ceylon, Iraq, Aden, Italy, U.K., Saudi Arabia, Syria, Iran, Australia, W. Germany and Muscat, which accounted for 98 per cent of total exports from India.

During storage, the brownish-red pulp becomes darker and, after about a year, is almost black. The pulp also becomes soft and sticky as pectolytic degradation takes place and moisture is absorbed especially in humid climates. Insect infestation is serious when seeds are present. Therefore, export of tamarind pulp as such presents lot of problems and leads to high transport cost also.

Attempts at overcoming these difficulties have resulted in the development of a process to manufacture a wholesome product, tamarind juice concentrate, at the Central Food Technological Research Institute, Mysore.

The process consists in extracting the solubles in the pulp with boiling water, then removing the insoluble solids by centrifugation, and concentrating the clear extract to 65-70° Brix under vacuum in vacuum evaporators. The final product sets like a jam on cooling and is readily soluble in water. For bulk transport, it is preferable to use lacquered tin containers or even glass bottles. The product has been found to stay well for more than a year, provided container is properly closed.

Tamarind juice concentrate has a good characteristic flavour and can be conveniently used for making sauces, chutneys and other savoury preparations. About 3000 kg. of this product have been made in the Pilot Plant of C.F.T.R.I. and supplied to firms abroad.

Re-constitution of the Board of Trade

The following is a Resolution [3 (1)/66-BOT, dated the 23rd June, 1966] of the Government of India in the Ministry of Commerce:

The Board of Trade was re-constituted vide Ministry of Commerce Resolution No. 3 (1)/64-BOT, dated the 6th July, 1964, for a period of two years. The term of the present Board of Trade expires on the 5th July, 1966. The Government has accordingly decided to again re-constitute the Board of Trade.

The Board as re-constituted will be composed of 28 members as follows:

Chairman

1. Minister of Commerce.

Vice-Chairman

2. Deputy Minister of Commerce.

Members

3. Shri Radheshyam Ramkumar Morarka M.P., New Delhi.
4. Shri Kandubhai Desai, M.P., New Delhi.
5. Shri Babulbhai M. Chinai, M.P., New Delhi.
6. Shri A. Ramaswami Mudaliar, Calcutta.
7. President, Federation of Indian Chambers of Commerce and Industry, New Delhi (*ex-officio*).
8. President, Associated Chambers of Commerce and Industry of India, Calcutta (*ex-officio*).
9. President, Indian Banks Association, Bombay (*ex-officio*).
10. Secretary, Ministry of Commerce, New Delhi.
11. Secretary, Ministry of Finance (Department of Economic Affairs), New Delhi.
12. Secretary, Ministry of Supply, Technical Development and Materials Planning, New Delhi.
13. Secretary, Ministry of Food and Agriculture (Department of Agriculture), New Delhi.
14. Foreign Secretary, Ministry of External Affairs, New Delhi.
15. Deputy Governor, Reserve Bank of India, Central Office, Bombay.
16. Additional Secretary, Planning Commission, New Delhi.
17. Shri M. P. Birla, Calcutta.
18. Shri P. L. Tandon, Bombay.
19. Shri Padampat Singhania, Kanpur.
20. Shri Gautam Sarabhai, Ahmedabad.
21. Dr P. S. Lokanathan, New Delhi.
22. Shri S. L. Kirloskar, Poona.
23. Shri P. A. Narielwala, Bombay.
24. Shri Sachin Chaudhuri, Bombay.
25. Shri E. P. W. da Costa, New Delhi.
26. Shri V. Balasubramanian, New Delhi.
27. Shri V. V. Parekh, Calcutta.
28. A Joint Secretary or officer of equivalent rank in the Ministry of Commerce (Member-Secretary).

The re-constituted Board is appointed for a term of two years.

The terms of reference and the powers and functions of the Board will be as set out in the late Ministry of Commerce and Industry Resolution No. 4-EP-(Coord)/62, dated the 11th May, 1962.

Indian Institute of Foreign Trade

The Indian Institute of Foreign Trade organised a Conference on Export Promotion in Madhya Pradesh in May, 1966, at Bhopal. It was the second regional Conference of its kind, the first being the Northern India Conference on Export Promotion held in April, 1965, at Kanpur. The Conference was organised with a view to stimulating export consciousness in Madhya Pradesh, and to focus attention on the problems of production and export marketing of various exportable commodities of the State. The Conference was inaugurated by the Union Commerce Minister, Shri Manubhai Shah, and was presided over by Dr Shanker Dayal Sharma, Minister for Commerce, Industry and Natural Resources, Madhya Pradesh.

Inaugurating the Conference, the Union Commerce Minister surveyed the world economic situation, and pointed out the need for mutual help and co-operation among the nations to maintain world peace and promote economic prosperity.

Reviewing the broad trends of India's foreign trade, the Union Commerce Minister observed that large trade deficits are a normal concomitant of economic development in the early stages. In spite of restricted import policy, imports continued to rise to meet the increasing requirements of development. In this connection, he briefly outlined the Fourth Five Year Plan and indicated that the foreign exchange component of the Plan would be substantially higher because of the establishment of complex technological industries, and the growing requirements of fertilizers, pesticides, insecticides, etc. Demand for raw materials, intermediate goods and components would also be substantially higher to feed the growing number of industries. The anticipated export earnings during the Fourth Plan are likely to cover nearly 56 per cent of the import bill. He mentioned that in the next 10 to 15 years, India's exports must reach a level of about Rs 2,000 crores per annum to pay for imports.

The importance of export promotion in this context could not be overemphasized. Export promotion played a vital role in carrying the process of development to a self-generating and self-reliant economy. He exhorted the industry and trade to be quality and cost conscious, and also to adhere to the international contracts and trading practices, to improve the packaging and to diversify production so that India's exports could be augmented.

It has been recognised that exports in a developing economy cannot appreciably expand in a short period due to physical, financial and technological handicaps. The gap between the imports and exports in the transition period has to be filled in by taking aid, loans and grants from friendly countries. These are to be repaid at a future time when export surpluses increase. It is, therefore, incumbent on the donor countries to offer greater opportunities for absorption of Indian goods in their countries. Aid along with trade should be the motto.

Expressing the confidence that Madhya Pradesh endowed with natural and mineral resources would contribute to India's export effort, the Union Commerce Minister stated that export earnings of the State should be increased from the present level of Rs 15 crores to Rs 50 crores by the end of Fourth Plan. In this connection, he invited the attention of the participants to the various Export Promotion Schemes, measures taken and organisations set up by the Central Government and also desired the State Government to encourage the export sector in the State through positive action.

Thanking the Union Commerce Minister, Dr Shanker Dayal Sharma, Minister for Commerce, Industry and Natural Resources, Madhya Pradesh State, in his presidential address briefly outlined the various steps which the State Government has undertaken to promote exports from the State of Madhya Pradesh. He pointed out that Madhya Pradesh's contribution to the export effort would have been larger but for lack of transport facilities. He was of the view that regional branches of offices of the Export Promotion Councils should be set up in the State to arouse export consciousness in the industry and trade.

After the inaugural session, the Conference broke into six working groups to study in detail the problems of production, processing, overseas marketing, packaging, quality control, export assistance, etc., relating to (*i*) Textiles; (*ii*) Ores and Minerals; (*iii*) Agriculture, Forest and Animal products; (*iv*) Handlooms and Handicrafts; (*v*) Engineering goods; and (*vi*) Chemicals. The reports of the Working Groups were discussed in the concluding session of the Conference in the presence of the Union Commerce Minister, Shri Manubhai Shah,

and the Minister for Commerce, Industry and Natural Resources, Madhya Pradesh, Dr Shanker Dayal Sharma.

Modern Groundnut Plant at Khanna

A modern plant imported from Japan is being installed by groundnut growers in the co-operative sector at Khanna at a total outlay of Rs 5 lakhs. The State Government is a partner in the venture. The Mill will be commissioned next October and will produce edible oil and cake, and eventually, vanaspati and cattle feed.

The factory will process 8 lakh bags of groundnut grown in Khanna Samrala, Ludhiana, Doraha, Bahadurgarh and Sultanpur in the next season by using an automatic solvent plant—the first of its kind in the State.

Groundnut contains 48 per cent of oil of which at present only 40 per cent is extracted. The new plant will extract the full oil component of 48 per cent.

Insecticide Plant

According to Mr R. S. Randhawa, Commissioner for Agricultural Development, Punjab, and the Managing Director of the State Agro-Industrial Corporation, the Corporation proposes to set up a public sector unit for the manufacture of insecticides in Punjab.

Short-Term Course at C.F.T.R.I., Mysore

The Central Food Technological Research Institute, Mysore, has organised a 4-month Course in meat, fish and poultry technology from 16th August, 1966.

The course is being conducted at the FAO International Food Technology Training Centre, and 22 persons from Ceylon, India, South Korea, Philippines and Thailand are participating in it.

The course will consist of general lectures, laboratory work and field trips to meat packing plants, fish and poultry processing plants and research institutes.

This is the third short-term training course to be organised at the FAO International Food Technology Training Centre. The first two courses, one on fruit and vegetable technology and the other on Infestation Control in Raw and Processed Foods were held from February 7 to March 31 and April 4 to May 27 respectively this year. These courses attracted participants from various countries of South and South-east Asia.

These courses are aimed at providing training to the participants in the development of food processing industry which at present is a highly essential requisite in several of the rapidly developing countries in Asia. The training provided at the Centre is designed to help the participants in putting the traditional methods of food processing on a scientific basis.

Officially inaugurated in April, 1965, the object of the International Training Centre is to train personnel from South and South-east Asia in food science and technology so that they could play an effective role in the rapid and rational development of modern food processing industry in the region.

A two-year post-graduate course in food technology is also conducted at the Centre which has been recognised by the University of Mysore for the award of the M.Sc. degree of the University. The first batch consisting of 25 students from Japan, South Korea, Thailand, Philippines and India will complete their course in June, 1967.

F.P.O. News

Contracts Placed by the Chief Director of Purchase, Ministry of Food and Agriculture (Army Purchase Organisation), Government of India, New Delhi.

(Orders of less than Rs 2,000 in value are not included).

Sl. No.	Tender No. and Article	No. or quantity (tonnes)	Value of contract (Rs)	Name of contractor	Indi-genous or Imported	Terms of Delivery [F.O.R.]
1	5/2/66-Pur-VI dt. 25-1-66 Chilli Pickle in oil	5-000	19,050	M/s. Babuleswaran Co., Madras	Indi-genous	Royapuram
2	5/2/66-Pur-VI dt. 25-1-66 Lemon Pickle in oil	5-000	18,000	M/s. Babuleswaran Co., Madras	,,	,,
3	5/2/66-Pur-VI dt. 31-1-66 Mixed pickle in oil	5-000	17,900	M/s. Basheshar Nath Sham Sunderlal, Delhi	,,	New Delhi
4	5/2/66-Pur-VI dt. 25-1-66 Mango Pickle in oil	5-000	18,000	M/s. Basheshar Nath Sham Sunderlal, Delhi	,,	,,
5	5/2/66-Pur-VI dt. 24-1-66 Orange Tinned	20-000	70,000	The Govt. of Sikkim Fruit Preservation Factory, Sikkim	,,	Rangpo/O.A.
6	5/1/9/66-Pur-VI dt. 28-1-66 Papaya Tinned	10-000	31,700	M/s. The New Swadeshi Sugar Mills Ltd., Allahabad	,,	Bamrauli
7	5/1/9/66-Pur-VI dt. 25-1-66 Papaya Tinned	30-000	95,100	M/s. The Tims Products Ltd., P.O. Belgharia	,,	Belgharia
8	5/1/9/66-Pur-VI dt. 21-1-66 Guava Tinned	40-000	88,000	M/s. The Nagpur Orange Growers' Coop. Assn. Ltd., Nagpur	,,	Nagpur
9	5/2/49/65-Pur-VI dt. 7-1-66 Cabbage curried	3-000	7,170	M/s. The New Swadeshi Sugar Mills Ltd., Prop. Allahabad Canning Co., Bamrauli, Allahabad	,,	Bamrauli
10	5/2/49/65-Pur-VI dt. 7-1-66 Cabbage in brine	30-000	42,000			
11	5/2/49/65-Pur-VI dt. 7-1-66 Cabbage in brine	5-000	13,450			
12	5/3/2/66-Pur-VI dt. 25-1-66 Guava jelly	10-000	24,700			
13	5/3/2/66-Pur-VI dt. 5-1-66 Pineapple Jam	5-000	14,550			
14	5/2/49/65-Pur-VI dt. 5-1-66 Carrots in brine	20-000	30,200	M/s. Nector Canned Foods Pvt. Ltd., Bhadri	,,	Bhadri
15	5/3/2/66-Pur-VI dt. 21-1-66 Raspberry Jam	10-000	27,300	M/s. Kissan Products Ltd., Bangalore	,,	Krishnaraja-puram

Sl. No.	Tender No. and Article	No. or quantity (tonnes)	Value of contract (Rs)	Name of contractor	Indigenous or Imported	Terms of Delivery [F.O.R.]
16	5/2/49/65-Pur-VI dt. 30-12-65 Carrots in Brine	10-000	14,500	M/s. Mysore Fruit Products Ltd., Bangalore	Indigenous	Bangalore
17	5/2/49/65-Pur-VI dt. 7-1-66 Cabbage curried	10-000	23,000	M/s. Spencer & Co. Ltd., Delhi	,,	Kanpur
18	5/2/49/65-Pur-VI dt. 7-1-66 Carrots in brine	10-000	14,700	M/s. Spencer & Co. Ltd., Delhi	,,	,,
19	5/3/2/66-Pur-VI dt. 21-1-66 Orange Marmalade	20-000	50,000	M/s. Kissan Products Ltd., Bangalore	,,	Bangalore
20	5/2/49/65-Pur-VI dt. 7-1-66 Carrots in brine	25-000	35,750	M/s. Midland Fruit and Vegetable Products (India), Mathura	,,	Mathura
21	5/2/49/65-Pur-VI dt. 7-1-66 Cabbage in brine	5-000	13,450			
22	5/2/49/65-Pur-VI dt. 7-1-66 Cabbage curried	4-000	9,500			
23	5/3/2/66-Pur-VI dt. 25-1-66 Guava Jelly	20-000	49,400			
24	5/3/2/66-Pur-VI dt. 25-1-66 Pineapple Jam	11-000	32,010			
25	5/10/1/66-Pur-VI dt. 28-1-66 Dal Chana, Dal Arhar and Dal Masur (in equal proportion)	5-932	16,500			
26	5/2/49/65/Pur-VI dt. 7-1-66 Carrots in brine	20-000	29,400	M/s. The Tims Products Ltd., Belgharia	,,	Belgharia
27	5/2/49/65-Pur-VI dt. 7-1-66 Kundri in brine	30-000	49,000			
28	5/2/49/65-Pur-VI dt. 7-1-66 Carrots in brine	25-000	35,750	M/s. Midland Fruit and Vegetable Products (India), New Delhi 13	,,	Okhla
29	5/2/49/65-Pur-VI dt. 7-1-66 Cabbage in brine	5-000	13,450			
30	5/2/49/65-Pur-VI dt. 7-1-66 Cabbage curried	3-000	7,170			
31	5/3/3/66-Pur-VI dt. 27-1-66 Mango Jam	16-000	41,440			
32	5/2/49/65-Pur-VI dt. 7-1-66 Peas in brine	345-000	6,86,550	M/s. Nagpur Orange Growers' Co-operative Association Ltd., Nagpur	,,	Nagpur
33	5/2/2/66-Pur-VI dt. 31-1-66 Carrots and Peas curried	3-100	7,657			
34	5/2/2/66-Pur-VI dt. 31-1-66 Baked Beans and Potatoes curried	3-100	7,657			

Sl. No.	Tender No. and Article	No. or quantity (tonnes)	Value of contract (Rs)	Name of contractor	Indigenous or Imported	Terms of Delivery [F.O.R.]
35	3/57/571/66-Pur-IV dt. 26-6-66 M/Toffee	1-226	5,333.10	M/s. Parry's Confectionery Ltd., Madras	Indigenous	Nellikuppam
36	3/67/632/66-Pur-IV dt. 17-6-66 Boiled Sweets	7-000	24,150	M/s. Sir Shadi Lal Sugar Mills Ltd., Mansurpur	,,	Mansurpur
37	3/67/618/66-Pur-IV dt. 17-6-66 Boiled Sweets	2-357	8,485.20	M/s. Parry's Confectionery Ltd., Madras	,,	Nellikuppam
38	3/69/632/66-Pur-IV dt. 17-6-66 Boiled Sweets	7-000	24,150	M/s. Sir Shadi Lal Sugar Mills Ltd., Mansurpur	,,	Mansurpur
39	5/2/14/66-Pur-VI dt. 13-5-66 Karela in Brine	21-000	31,290.00	M/s. Dyer Meakin Breweries Ltd., Ghaziabad	,,	Sahibabad
40	5/2/12/66-Pur-VI dt. 11-5-66 Karela in Brine	25-000	37,250			
41	5/3/10/66-Pur-VI dt. 23-5-66 Pineapple Jam	20-000	57,800	M/s. Rattan Lal & Co., Delhi	,,	Delhi
42	5/3/10/66-Pur-VI dt. 20-5-66 Apricot Jam	10-000	25,400	M/s. G.G. Fruit Preserving Factory, Agra	,,	Haldwani
43	5/3/10/66-Pur-VI dt. 23-5-66 Mango Jam	10-000	24,500	M/s. Midland F. & V. Products (I), Okhla	,,	Okhla
44	5/3/10/66-Pur-VI dt. 23-5-66 Peaches Jam	10-000	24,500			
45	5/4/11/66-Pur-VI dt. 20-5-66 Potatoes Tinned	60-000	89,400	M/s. Dyer Meakin Breweries Ltd., Ghaziabad	,,	Sahibabad
46	5/4/11/66-Pur-VI dt. 18-5-66 Potatoes Tinned	20-000	29,800	M/s. Mysore Fruit Products Ltd., Bangalore	,,	Bangalore
47	5/2/7/66-Pur-VI dt. 28-4-66 Peas in Brine	5-000	16,350	M/s. Excel Food Industries, Jammu	,,	Jammu
48	5/1/12/66-Pur-VI dt. 15-4-66 Plum Tinned	4-000	13,000	M/s. Tims Products Ltd., Belgharia, West Bengal	,,	Belgharia
49	5/1/12/66-Pur-VI dt. 15-4-66 Mango Tinned	28-000	73,640			
50	5/1/12/66-Pur-VI dt. 15-4-66 Plum Tinned	11-000	35,750	M/s. Midland Fruit and Vegetable Products (I), New Delhi	,,	Mathura
51	5/1/12/66-Pur-VI dt. 15-4-66 Mango Tinned	86-000	2,26,180	M/s. Midland Fruit and Vegetable Products (I), New Delhi	,,	Mathura

Sl. No.	Tender No. and Article	No. or quantity (tonnes)	Value of contract (Rs)	Name of contractor	Indigenous or Imported	Terms of Delivery [F.O.R.]
52	5/1/12/66-Pur-VI dt. 15-4-66 Mango Tinned	42-000	1,10,460	M/s. The New Swadeshi Sugar Mills Ltd., Prop. Allahabad Canning Co., P.O. Bamrauli, Allahabad	Indigenous	Bamrauli
53	5/1/12/66/-Pur-VI dt. 15-4-66 Plum Tinned	5-000	16,250			
54	5/1/12/66-Pur-VI dt. 15-4-66 Cherries Tinned	25-000	81,250	M/s. H. A. Rahim & Co., Srinagar	,,	Srinagar
1	5/8/7/66-Pur-VI dt. 7-7-66 Mango Pickle in oil	5-000	17,500	M/s. The Farms Products, Mankapur, Dist. Gonda	,,	Mankapur
2	5/8/7/66-Pur-VI dt. 7-7-66 Chilli Pickle in oil	6-000	26,100	M/s. B. M. Industries, Utran, Dist. Jalgaon	,,	Pachora
3	5/8/7/66-Pur-VI dt. 7-7-66 Lemon Pickle in oil	6-000	25,500			
4	5/8/7/66-Pur-VI dt. 30-6-66 Mango Pickle in oil	2-333	9,332	M/s. Kanshi Ram Sohan Lal, New Misri Bazaar, Amritsar	,,	Amritsar
5	5/8/7/66-Pur-VI dt. 30-6-66 Mixed Pickle in oil	6-000	24,600			
6	5/8/7/66-Pur-VI dt. 7-7-66 Lemon Pickle in oil	1-500	6,375			
7	5/8/7/66-Pur-VI dt. 30-6-66 Mango Pickle in oil	2-334	9,336	M/s. Basheshar Nath Sham Sunder Lal, Khari Baoli, Delhi	,,	Delhi
8	5/8/7/66-Pur-VI dt. 30-6-66 Mixed Pickle in oil	6-553	26,867			
9	5/8/7/66-Pur-VI dt. 7-7-66 Lemon Pickle in oil	1-500	6,375			
10	5/8/7/66-Pur-VI dt. 7-7-66 Chilli Pickle in oil	1-500	6,525			
11	5/8/7/66-Pur-VI dt. 7-7-66 Chilli Pickle in oil	4-500	19,575			
12	5/8/7/66-Pur-VI dt. 7-7-66 Lemon Pickle in oil	3-000	12,750			
13	5/8/7/66-Pur-VI dt. 30-6-66 Mango Pickle in oil	2-333	9,332	M/s. Midland Fruit and Veg. Products (I), P.O. Okhla, New Delhi	,,	Okhla
14	5/3/13/66-Pur-VI dt. 11-7-66 Guava Jelly	7-500	18,675			
15	5/3/13/66-Pur-VI dt. 11-7-66 Orange Marmalade	8-000	22,320			

Sl. No.	Tender No. and Article	No. or quantity (tonnes)	Value of contract (Rs)	Name of contractor	Indigenous or Imported	Terms of Delivery [F.O.R.]
16	5/3/13/66-Pur-VI dt. 11-7-66 Pineapple Jam	10–000	27,900	M/s. The Midland Fruit and Veg. Products (I), P.O. Okhla, New Delhi	Indigenous	Okhla
17	5/3/13/66-Pur-VI dt. 12-7-66 Peaches Jam	20–000	47,800			
18	5/3/14/66-Pur-VI dt. 4-7-66 Apricot Jam	10–000	27,300	M/s. H. A. Rahim & Co., Rajbagh, Srinagar (Kashmir)	,,	Factory Godown
19	5/5/5/66-Pur-VI dt. 5-7-66 Dehyd. Onions	70–000	6,12,500	M/s. Midland Fruit and Veg. Products (I), New Delhi	,,	...
20	5/2/16/66-Pur-VI dt. 23-6-66 French Flat Beans	2–900	6,235	M/s. Rai & Sons Pvt. Ltd., New Delhi	,,	Hyderabad
21	5/3/12/66-Pur-VI dt. 7-7-66 Pineapple Jam	10–000	27,300			
22	5/3/18/66-Pur-VI dt. 28-6-66 Kundri in brine	8–000	12,000			
23	5/2/18/66-Pur-VI dt. 28-6-66 Baked Beans in Tomato Sauce	5–000	10,750			
24	5/4/14/66-Pur-VI dt. 22-6-66 Potatoes Tinned	5–000	7,500			
25	5/2/18/66-Pur-VI dt. 28-6-66 Baked Beans in Tomato Sauce	7–000	15,190	M/s. The New Swadeshi Sugar Mills Ltd., Allahabad	,,	Bamrauli
26	5/2/17/66-Pur-VI dt. 25-6-66 Karela in brine	5–000	7,750			
27	5/2/15/66-Pur-VI dt. 10-6-66 Parwal in brine	20–000	32,000	M/s. Nector Canned Foods Pvt. Ltd., Bhadri	,,	Bhadri
28	5/4/12/66-Pur-VI dt. 10-6-66 Potatoes Tinned	15–000	22,050			
29	5/3/12/66-Pur-VI dt. 7-7-66 Pineapple Jam	44–548	1,24,288			
30	5/4/13/66-Pur-VI dt. 21-6-66 Potatoes Tinned	5–134	7,752	M/s. Dyer Meakin Breweries Ltd., Mohan Nagar, Ghaziabad	,,	Sahibabad
31	5/4/14/66-Pur-VI dt. 22-6-66 Potatoes Tinned	4–766	7,197			
32	5/2/15/66-Pur-VI dt. 15-6-66 Karela in brine	40–000	59,600			
33	5/2/15/66-Pur-VI dt. 15-6-66 Tinda in brine	10–000	15,300			

Export News

- *Revaluatian of rupee contracts entered into prior to devaluation*
- *Parties interested in the import of Indian canned Foods*
- *Import policy for the issue of licences ..... against imports of processed foods*

Revaluation of Rupee Contracts entered into prior to Devaluation

Representations have been received by the Government of India in respect of some contracts entered into prior to devaluation and expressed in terms of Rupees, for the supply of goods and services, etc., to countries other than those with whom there are Rupee Trade Agreements i.e., to countries other than East European countries and U.A.R. and where shipments are yet to be made and payments are still to be received. The Government of India considers that immediate steps are necessary for the fulfilment of such contracts in order to protect the full interest of the foreign buyer.

The Government of India accordingly advises all exporters to raise the invoice value of such contracts by 57.5 per cent. This will ensure that Indian exporters will receive their payment in parity with the current value of the rupee, and the foreign buyer will pay the same amount in foreign currency. The exporters should also advise foreign buyers accordingly and in consultation with them, effect shipments in fulfilment of the contracts. All authorities concerned such as Import and Export Control Officers, Custom Officers, etc., are being requested to accept the prices revised on this basis so that shipments may proceed smoothly.

Parties interested in the Import of Canned Fruit and Vegetable Products

The following parties are interested in the import of Indian canned fruit and vegetable products.

1. M/s International Agency, P.O. Box 143, Port Louis, Mauritius.
2. M/s Fuad el Zein, Saba's Bharat Street, Saraf Building, Damascus, Syria.
3. Dr Juan Carlos Beron, F. B., Lavelle 3944, Buenos Aires, Argentina.
4. Wilbur C- N1, 2, Hamburg, West Germany.
5. Carl K. Bohn, Import Agencies Export, NR—FARIMAGSGADE 58, Copenhagen, Denmark.
6. M/s Hymofix S. A., 53, Syngrou Avenue, Athens (Greece).
7. M/s Excellence Drinks & Foods Company Ltd., 75-C, High Street, Singapore-6.
8. M/s Hiap Hua & Co., 39-C (13) Jurong Road, 13 M/s Singapore 22.
9. M/s Alexander Company, No. 67, Padugan Road, Kuching, Sarawak.
10. M/s Hock San Yuen Syrup, Manufactory No. 15 Odin Square, Singapore 3.
11. Mr M. T. Y. Leong, 66 Village Road, Apt. B-1, Happy Valleny, Hong Kong.
12. M/s Amolak Textiles, 30, Rongphim Lane, Samphing Street, Bangkok.
13. M/s Kohli & Co., Ltd., 434, Leeds Road, Bradford 3, Yorkshire.

Import policy for the issue of licences for raw materials, components and spare parts etc,. against exports of processed foods

Import policy for the issue of licences for raw materials and intermediates, including components and spares, against the exports effected by registered exporters on or after

6th June, 1966, has been announced in the Ministry of Commerce, Public Notice Nos. 116-ITC (PN)/66 and 122-ITC (PN)/66 dated the 16th August, 1966, and 24th August, 1966, respectively. This note gives details regarding the policy announced in the Public Notices and the procedure for submission of applications.

It has been decided to issue import licences for raw materials and intermediates, including components and spares, against exports effected by registered exporters on or after 6th June, 1966, in respect of commodities mentioned in the Annexure I to this Note. This Annexure should be deemed to have been included as a new Part viz. Part 'E' in Section II of the Import Trade Control Policy (Red Book) for the year April 1966-March 1967. The percentage of import entitlement against the export of each of the commodities is also given in the 'Annexure I'.

Nomination of manufacturers by registered exporters

A Registered Exporter who is not the manufacturer of the product exported or of parts or components thereof is required to nominate one or more manufacturers of the product exported or of parts or components thereof for receiving import licences against his exports. A Registered Exporter who is himself the manufacturer of the exported products or of parts or components thereof can also, if he so desires, nominate any other manufacturer/manufacturers of the product exported or of parts or components thereof against the exports effected by him.

All nominations under the afore-said policy should be made within a period of fifteen days from the date of shipment of the goods as indicated in the relevant Bill of Lading/Airway Bill/Postal Receipt in the form as per Annexure II. If two or more manufacturers are to be nominated against one transaction of exports, the required details of all the nominees should be mentioned in the same document of nomination. In respect of exports made during 6-6-1966 to 31-8-1966, the exporters should make the nominations upto 22-9-1966.

The document of nomination will form part of the documents to be submitted by the Registered Exporter along with the quarterly application for the issue of the import licences which he has to submit to the licensing authority before the end of the month following the quarter in which the exports were effected.

Exports not qualifying for an import licence

Import licences will not be issued against exports made to Nepal, Afghanistan, Sikkim and Bhutan. In the case of Afghanistan, only such exports which have been made against free foreign exchange will be taken into consideration for the issue of import licences.

Permissible items

Under this policy, licences will be issued for the import of such items of raw materials and intermediates including components and spares for which the registered manufacturer-exporter or the nominee of the registered exporter, as the case may be, holds a valid actual user licence. In this connection the following points are clarified:

(*i*) The valid A.U. licences should be for the items permissible to actual users engaged in the manufacture of the export products or parts or components thereof.

(*ii*) The valid A.U. licence may pertain to any licensing period and may also have been utilised in part or full provided its period of shipment has not expired on the date of submission of the application for the import licence.

(*iii*) The term 'valid A.U. licence' includes licences issued by the Iron and Steel Controller.

(*iv*) Requests for items other than those convered by a valid A.U. licence will be considered by the licensing authorities in consultation with the D.G.T.D. or other technical authorities concerned.

Procedure for submission of applications for licences

Applications for import licences should be made only by the registered exporters in the prescribed form (Annexure III). Copies of the application forms will be available to the applicants from this Council. The applicants can also use their own typed, cyclostyled or printed copies of the prescribed forms. Arrangements will also be made in due course for the sale of these forms by the authorised dealers in Government Publications and by the licensing authorities on payment of 12 paise per form.

The applications should be made to the licensing authority under whose jurisdiction the Head Office of the registered exporters is situated. Names and jurisdiction of the licensing authorities are given in Annexure IV.

Ordinarily only one copy of the application would suffice. However, in cases where any items licensable by the Iron and Steel Controller are also sought to be imported, the application for the licence should be made in duplicate. The licensing authority receiving the application will forward one copy thereof to the Iron and Steel Controller for the issue of the licence in respect of the items licensable by him. The Iron and Steel Controller will not entertain any application direct.

Where an import licence is to be issued in the name of a nominee or nominees, the particulars of the nominee(s) should be given in the prescribed form appended to the application for licence.

Application in respect of exports effected from 6-6-1966 to 30-9-1966 have to be made by 31-10-1966. Thereafter, the application for import licences will be required to be made in quarterly basis in respect of exports made during the preceding quarter. The import application should reach the licensing authority within one month after the quarter to which the exports related, i.e., if the exports are made in the quarter October—December 1966, the application for the import licence against such exports should be made before the end of January 1967 and so on.

A registered exporter should make one consolidated application for import licence (s) against export of all the Processed Foods items made by him during a quarter. If the import licences are to be issued in favour of more than one nominee, the consolidated application should be accompanied by separate particulars of all the nominees in the prescribed form appended to the application for licence. In respect of each import licence claimed, the consolidated application should be accompanied by 5 copies of the list of goods sought to be imported. Separate sets of lists should be sent in respect of items licensable by the Iron and Steel Controller.

Unlike in the past, the exports made to rupee payment countries will also now qualify for licences for the import of goods from the General Currency Area. However, in cases where imports of any of the permissible items are sought to be made from the rupee payment area, a separate set of 5 copies of the list of items to be imported from the rupee payment area should be sent with the application for import licence.

It has been provided in the policy, that an import licence issued to a registered exporter who is manufacturer-exporter, against the exports made by him, may, on

request, be made valid for an amount not exceeding one-fifth of the value of the licence and not exceeding Rs 1,00,000 (one lakh) in any case, for the import of jigs and tools and equipment for packaging and tagging. The applicants desirous of availing themselves of this facility should send a separate set of 5 copies of the list of such items sought to be imported indicating the description and specification of each item in the list. The licensing authorities will, in such cases, make a suitable endorsement on the licence making it valid for the import of these items to the extent indicated above, after obtaining indigenous clearance from the D.G.T.D. It should be noted that this facility is not applicable in the case of a licence issued to a nominated manufacturer.

Application Fees

The rate of fees in respect of applications to be made under this policy has been revised. The applicants will be required to pay application fees at a flat rate of Rs 50 for each application irrespective of the value of the goods sought to be imported as specified in the application. The fees should be deposited in any Treasury of Government or Office of the State Bank of India or the Reserve Bank of India for credit to the Central Government under the head 'Import Licence Application Fees' subordinate to the major head 'XXXII Miscellaneous Social and Developmental Import and Export Trade Control Organisation'.

Documents to be furnished with the import application

Application for an import licence should be accompanied by the following documents:

(*i*) Treasury challan showing the payment of application fee.

(*ii*) The documents of export in the name of the registered exporter as detailed below:

(*a*) Shipping Bill duly authenticated by Customs;

(*b*) Bill of Lading; and

(*c*) Invoices duly attested by the negotiating bank.

Note: In the case of exports by air, airway bill should be produced in place of the bill of lading. In the case of exports by post, postal receipt should be produced in place of bill of lading and the shipping bill. In the case of exports by value payable post parcels (VPP), the applicants should produce only the invoice giving the description of goods and the weight of the individual items and their total weight actually exported, supported by the relevant postal receipt.

(*iii*) Original with a certified copy of the valid actual user licence (including the list of goods attached to that licence) on which the items applied for are based. If the applicant is unable to produce the original licence and the list of goods, a photostat copy thereof will also be accepted. The photostat copy should be of such size and magnitude as may be easily readable.

ANNEXURE I

List of Processed Foods and the value of import permissible against their exports:

I. 5 per cent of FOB export value

1. Curry Powder and paste
2. Banana fritters and potato wafers
3. Papads
4. Channa made products such as Sandesh and Rasgolla
5. Khoa made products such as Barfi and Peda
6. Dry fruits excluding walnuts and cashewnuts
7. Starch and its derivatives
8. Poultry products

For packing materials

9. Wheat bran (for packing materials and nylon cloth)
10. Guar Gum, Crude
11. Guar Gum, Refined
12. Sugar cubes (for chemicals)

II. 10 per cent of FOB export value

1. Synthetic beverages, syrups and sharbats
2. Vinegar, whether brewed or synthetic
3. Pickles (all kinds oil-based, sweet-sliced, etc.)
4. Dehydrated fruits and vegetables
5. Squashes, crushes, cordials, barley water and barrelled juice and ready-to-serve beverage or any other beverage
6. Jams, jellies and marmalades
7. Tomato products—puree, paste, ketchups and sauces
8. Preserves, candied and crystallized fruits and peels including murrabba
9. Canned and bottled fruits, juices and pulps
10. Canned and bottled vegetables including canned curried kabuligram
11. Frozen fruits and vegetables
12. Aerated waters containing fruit juices and pulps
13. Custard powder
14. Corn flour
15. Baking powder
16. Juice powder
17. Jelly crystals
18. Tea mix powder
19. Coffee mix powder
20. Mustard powder
21. Ice cream mix powder and ice cream
22. Canned meat products
23. Macaroni, Vermicelli and Spaghetti
24. Breakfast foods
25. Guar Gum, pulverised
26. Guar Gum, treated
27. Biscuits
28. Confectionery
29. Butter, oil and ghee (for skimmed milk)

III. 20 per cent of FOB export value

1. Baby milk food
2. Condensed milk } for skimmed milk
3. Cheese
4. Synthetic non-alcoholic beverage bases like Coca-Cola concentrate and citrus beverage base.

ANNEXURE IV

Name of the licensing authority	Jurisdiction
1. Joint Chief Controller of Imports and Exports, Bombay	The States of Madhya Pradesh, Maharashtra and Gujarat
2. Joint Chief Controller of Imports and Exports, Calcutta	The States of Assam, Bihar, Orissa, West Bengal, Manipur, Tripura, NEFA, Andaman and Nicobar Islands
3. Joint Chief Controller of Imports and Exports, Madras	The States of Madras, Mysore (excluding Mangalore Dist.), Andhra Pradesh, Pondicherry, Karikal, Mahe and Yanam
4. Joint Chief Controller of Imports and Exports, Central Licensing Area, New Delhi	Rajasthan, Punjab, Delhi, Himachal Pradesh, the State of Jammu and Kashmir
5. Dy. Chief Controller of Imports, Panjim, Goa	Goa, Daman and Diu and Dadra and Nagar Haveli
6. Dy. Chief Controller of Imports and Exports, Ernakulam	Kerala, Mangalore District of Mysore and Lacadive, Minicoy and Amindivi Islands
7. Dy. Chief Controller of Imports and Exports, Kanpur	The state of U.P.

Foreign News

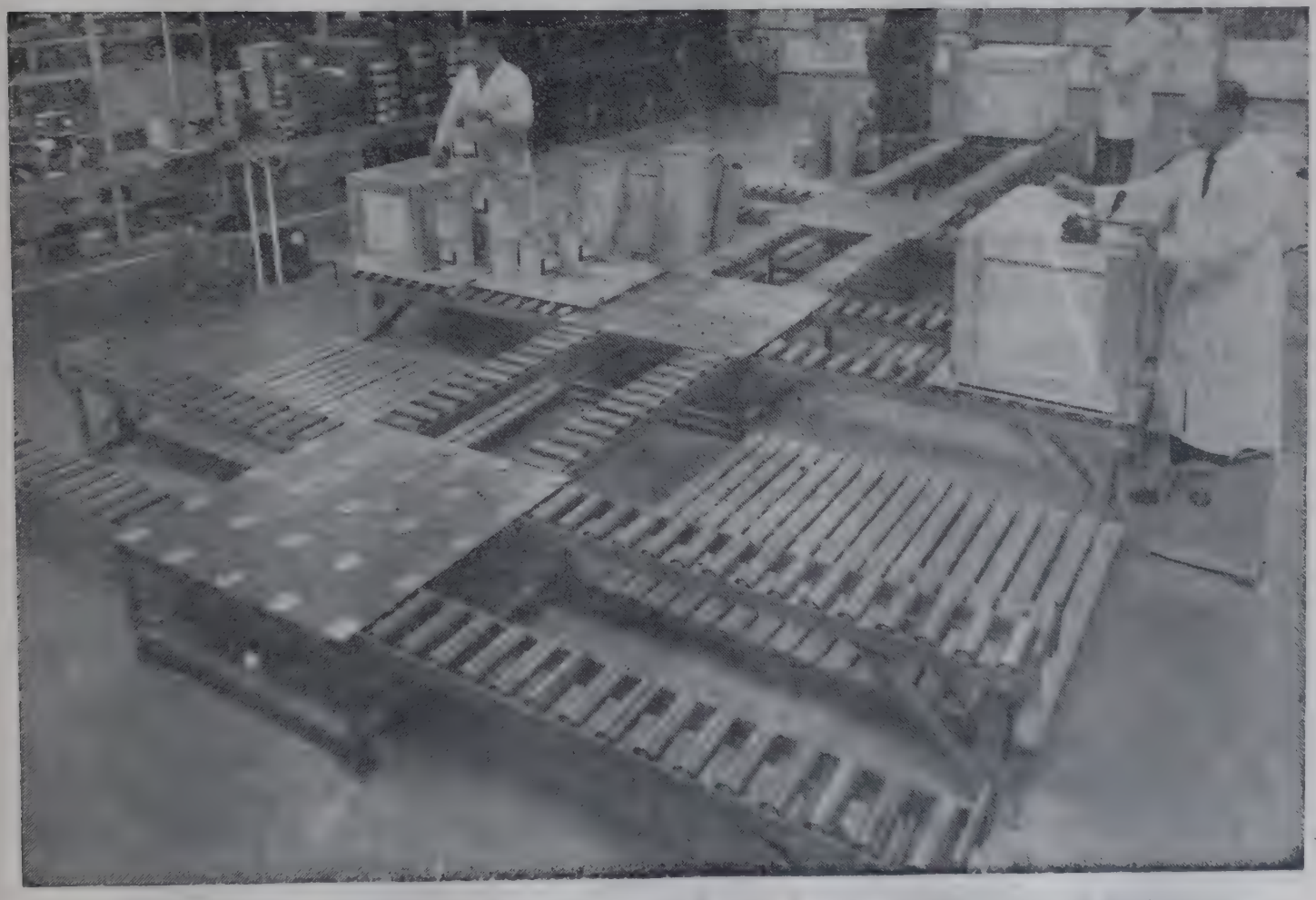
- *U.K.— (i) Flexible six station conveyorised packing room system*
  (ii) Schweppes Ltd., London
  (iii) Export Services Exhibition
  (iv) Food Machinery Association
- *Holland—Food and Beverage Trade Fair*
- *Sweden—Market for animal casings*
- *Austria—The eighth conference of the Confederation of European Soft Drinks Associations*
- *Canada—How maturity at harvest affects canned peaches*
- *U.S.A.— (i) Sugar Osmosis dried fruits at low cost, high quality*
  (ii) Drawn tinplate can developed
  (iii) Standards and Regulations
  (iv) Fermentation raised food grain value
  (v) Four Grants to Improve Foodstock
- *Australia— (i) Continuing research on fruit*
  (ii) Patient work lies behind success with strawberries
- *U.S.S.R.—India's trade with Russia*

U.K.

Flexible Six Station Conveyorised Packing Room System

The problem of providing a flexible method of handling 'packing' for despatch in a large factory where goods are so varied in size, fragility and type of packaging materials required, has been ingeniously overcome in the Landline Systems Division of Standard Telephones and Cables Ltd. at their Basildon factory.

The illustration shows the conveyorised packing room layout that has been devised



Six station conveyorised packing room system. British Automatic Conveyor and Equipment Co. Ltd., London, England.

to meet this problem. As will be seen, it consists of a series of narrow and parallel roller conveyors linked by four ball-castor tables to form six separate packing stations.

Each roller conveyor station is so designed that it will accept the various sizes of carton or case in general use, ample space being allowed for the packer and packing materials to be used.

Method of working is for a flat platform to be first placed in the conveyor on the top of which are slats which permit steel strapping to be passed under the carton or case when it is placed on the platform.

After packing and strapping, the case is pushed to the scales, the ball-castor tables allowing easy diversion and the flat platform allowing easy movement without fear of catching or damage to the case.

After weighing and recording, the case is taken from the scales by truck to the transport section for final distribution.

Further information on this type of installation may be obtained from British Automatic Conveyor and Equipment Co. Ltd., 41-42 Prescot Street, London, E. 1, England.

Schweppes Limited, London

In his statement at the annual general meeting of Schweppes Ltd., the Chairman, the Hon'ble Hanning Philipps, M.B.E., said that the full implementation of the pledge not to increase prices during 1965 'cost us a considerable sum of money in severely narrowed profit margins'.

Margins have since been strengthened by stringent economies and higher productivity and by minimum selective increases in the price of certain products.

Schweppes are currently producing in 38 overseas markets and exporting to 135.

Mr Philipps stated that 1965 was a testing year for the Group, primarily through circumstances outside the directors' control. Despite these adverse influences, sterling sales were a record £63m, which is regarded as a measure of the groups growing international marketing strength.

The Group's pre-tax profit in 1965 showed a decline from £5,216,000 to £5,139,000 but the dividend is raised a 1/2 per cent to 14 per cent.

The Chairman said that although the licensed and catering division had a record Christmas, that did no more than make up for poor sales earlier in the year.

The East Kilbride factory is now in production and arrangements have been concluded for the sale of the Glasgow factory, while the occupation of the new St. Albans offices has enabled the old Hartley factory and offices in South London to be sold. Disposal of the Chivers and Hartley properties surplus to the Group's requirements is continuing.

Export Services Exhibition

A second and much larger Export Services Exhibition sponsored by the Institute of Export will be held at Olympia from October 10th to October 14th. At least 150 exhibitors are expected to take part, occupying double the previous floor space.

The object of the exhibition is to show the comprehensive range of services which are available to make export trade both possible and simple. While many visitors will be businessmen already engaged in exporting, the exhibition will be of special interest to would-be exporters who have perhaps little idea of the opportunities which exist for increasing their business through overseas sales, or of the wealth of professional assistance which is available to make exporting easy.

Exhibitors will include export packing companies, warehousing, national airlines, shipping companies, air freight, road transport, finance service, packaging materials, shipping, forwarding houses, export merchants and buying houses, banking services,

translating services, business travel, print for export and many other facets of selling overseas.

Food Machinery Association

The sixteenth annual general meeting of the Food Machinery Association was held in London on 10th May when the retiring Chairman, Mr P. C. Tweedie, O. B. E. (Mather and Platt Ltd.), and the retiring Vice-Chairman, Mr J. N. Pelkman (John Pelkman Engineering Co. Ltd.), were re-elected. Mr A. Graham Enock (Graham-Enock Manufacturing Co. Ltd.), was elected hon. treasurer.

The meeting was followed by the annual dinner at the Hyde Park Hotel when the toast of 'The Guests' was proposed by Mr Tweedie. He said that Britain would sooner or later go into the Common Market which would provide food machinery manufacturers with glittering opportunities of increasing their export trade. It would, however, also provide Continental competitors with opportunities of exporting to this country so British manufacturers would have to set high standards in the day to day conduct of their business.

Mr Richard Trehane, Chairman of the Milk Marketing Board, replied on behalf of the guests and congratulated the Association and its members on their achievements during the past year. He pointed out that, with the present trends of world population, there would be tremendous opportunity for increased business arising from the need to feed very large numbers of additional people.

HOLLAND

Food and Beverage Trade Fair

April 25th saw the opening by Dutch Minister of Food and Fisheries, Mr B. W. Biesheuvel, of the 15th International Food and Beverage Trade Fair in Utrecht. It was the largest exhibition of its type ever held in Holland.

The exhibits covered international manufactures in the food and beverage fields in the widest sense, and a similarly wide range of shop fittings and equipment were accommodated in five of the exhibition halls on the Croseslaan site of the Royal Netherlands Industries Fair premises. Of the 800 or so manufacturers represented, half were Dutch: the remainder being divided among 28 countries, of which eight staged a collective national exhibit.

SWEDEN

Market for Animal Casings

The import of animal casings from India into Sweden has been insignificant. There is no Customs duty on the import of animal casings into Sweden. Swedish importers of animal casings insist on a very high hygienic standard of cleanliness for animal casings. All fat and dirt should be removed and the casings should be thoroughly cleaned. The salt used for the casings should also be of a very high quality. The Swedes generally do not import goat casings as they are not straight. They have strong preference for sheep casings. According to Swedish importers, India has so far not been able to comply with these basic requirements. Following are considered to be the major defects in Indian animal casings:

(*i*) They are not properly cleansed;
(*ii*) They are badly graded; and
(*iii*) Goat casings are mixed with those of sheep.

AUSTRIA

The Eighth Conference of the Confederation of European Soft Drinks Associations

In May, the eighth conference of the Confederation of European Soft Drinks

Associations (CESDA) took place in Vienna. There were nearly 400 participants from 16 countries. The official opening of the conference took place in the Palace of Industry on Tuesday, 3rd May, when Dr Robert Harmer, President of the Austrian Food Manufacturers' Association, extended a warm welcome to all and stated that Austria had always been a keen supporter of CESDA. He hoped that the Conference would prove fruitful and that further steps would be taken to create common food laws throughout Europe in order to safeguard the position so far attained in the beverage industry. He greatly regretted the absence due to ill-health of Dr Hans Frenzel, Chairman of the European Council of the Codex Commission. Welcoming speeches were also made by the Provincial Governor and Mayor of the City of Vienna, Bruno Marek and by the President of the Austrian Federal Chamber of Commerce and Industry, Rudolf Sallinger. Language difficulties were overcome by the supply to all participants of transistor sets bringing simultaneous translations of all speeches in one's own language through earphones.

The first paper was 'Market Research for Soft Drinks' given by Dipl. Ing. W. Weber of Austria. This was followed by a paper by Jean Allary of France who spoke about the work of UNESDA, the organisation representing the soft drinks associations of the Common Market countries, and its relations with CESDA. Next came Mr Walter Garvey from England, whose paper 'Improving the Soft Drinks Image' was a development of the session contributed by the Midland Region at the Soft Drinks Trade Conference in Blackpool last year. The final talk on the day was 'The Development of a European and World-Wide Codex Alimentarius' given by Herr G. Klein, the Secretary of the German Soft Drinks Association. Dr John Sharf of the Research and Development Centre of Armstrong Cork Company in the United States spoke on the trends in the U.S. on the future of the soft drinks industry on the next day. Mr Jean Allary (France) presented his seventh comparative statistical study on the soft drinks industry in Europe. Dr K. Kaindl, Director of the Project and of the Institute of Biology and Agriculture at the Austrian Reactor Centre, gave a paper 'International Project for the Irradiation of Fruits and Fruit Juices'. This technical treatise on future new possibilities for the preservation of juices aroused much interest. This was followed by a paper 'Variation in the Composition of Fruit Juices' given by Prof. E. von Sydow of Sweden. At the final session, Dr R. Kuhles (Germany) gave a most comprehensive report on developments in the field of machinery and equipment which was followed by a paper of Dkfm. K. Leistner, President of the Austrian Soft Drinks Association, on 'Modern Methods of Distribution.'

The CESDA General Assembly met twice during the week of the Conference. These meetings were attended only by the official delegates of each member-association, those of the National Association being Mr R. Barraclough, Mr J. A. Bolton, J. P. and Mr J. P. Lissimore. In the Election of the CESDA Managing Committee, Mr Rolf Steenhoff (Sweden) was re-elected President; Mr Jean Allary (France) and Dr Rudi Kuhles (Germany) were re-elected Vice-Presidents and Mr Kenneth Penn, M.B.E. (England), was re-elected General Secretary.

CANADA

How maturity at Harvest affects Canned Peaches

During eight seasons (1956-64), the canned quality of *Golden Jubilee*, *Veteran*, and *Elberta* was studied in relation to fruit maturity at time of harvest. Each variety

was harvested at various stages of maturity and ripened at room temperature before canning. Samples were also stored for 5 days at 32°F before and after ripening and the effects on canned quality were observed. Rot development was studied in 1963 and 1964.

It was concluded that the storage experiences had no detected effect on canned quality. In general, poorer quality resulted when a longer ripening period was required, but the effects of ripening period varied from year to year and with variety. Flavour deteriorated before appearance. Fruit requiring longer ripening period was so small that yields were seriously affected. And, rots increased with ripening period—1964 Report of Horticultural Experiment Station, Vineland Station, Ontario, Canada.

U.S.A.

Sugar Osmosis Dried Fruits at Low Cost, High Quality

Producing high-quality dehydrated fruit at a reasonable cost may be possible with a new sugar process. The process involves covering cut fruits with dry sugar or sirup, which removes 60-70 per cent of their moisture—or half their weight. Then, they are drained and dried further under vacuum or in air. With absorption of moisture, the dry sugar becomes sirup.

Laboratory work not only has produced a new product but has shown that ordinary sugar, or sucrose, prevents most cut fruits from turning brown. Films of sugar also reduce losses of natural volatile flavours. These findings could stimulate widespread use of sugar as a fruit-drying agent.

Besides their potential as commercial dried fruits, these products are attractive for eating out of hand and for use in breakfast cereals. That is because they have a lower acidity and slightly slower rate of absorption of liquid, as compared with other dried foods.

Costs are higher than those of drying in heated-air stream tunnels and lower than those of more complex processes such as freeze-drying—Western Utilization Research Laboratory, USDA, Agricultural Research Service, March 4, 1966.

Drawn Tinplate Can Developed

A drawn tinplate can for tuna, combining the best features of tinplate and aluminium, has been introduced by the American Can Co. The new can, tradenamed 'Miraform' is printed before drawing and is suitable for a variety of products.

The can is seamless and 25 per cent lighter than the standard tinplate container. It can withstand the abuse of long distance shipping. Elimination of side and bottom seams is said to permit more complete coverage of the container by an interior coating. The addition of a bead around the bottom of the container improves handling.

Standards and Regulations

Gamma Radiation—Proposal provides for the use of gamma radiation from cobalt-60 or cesium 137 sources in the irradiation of fresh strawberries by an absorbed dose of 100 to 250 kilorads for the control of microbial spoilage. Proposed by U.S. Atomic Energy Commission, Washington, D.C. —Fed. Reg., May 18, 1966.

Bread Emulsifier—Petition provides for the safe use of tallowyl-beta-lactic acid as an emulsifier in bread at a level not in excess of 0.6 per cent by weight of the flour used. Proposed by Swift & Co., Chicago, Ill. —Fed. Reg., May 21, 1966.

Fruit and Vegetable Washing—Proposal provides for the safe use of sodium mono- and dimethyl naphthaline sulfonate (mol. wt. 245-260) in washing or to assist in the

lye peeling of fruits and vegetables at a level not to exceed 0.2 per cent in the wash water. Proposed by Continental Chemical Co., No. Sacramento, Calif.—Fed. Reg., May 26, 1966.

Creamed Cottage Cheese—Proposal would change the standard of identity of this product by allowing the sodium, calcium and potassium salts of casein and dried milk protein as optional ingredients in the creaming mixture. Proposed by Cresh Foods Co. Inc., Ashton, Ill., and Land O'lakes Creameries, Inc., Minneapolis, Minn.—Fed. Reg., May 26, 1966.

Fermentation Raised Food Grain Value

Protein deficiency is the world's most urgent dietary problem. A simple fermentation process has been developed in the United States to increase the nutritive value of grain. Combinations of wheat, barley, oats, rice or soybean flour are cooked, and then the mould *Rhizopus oligosporus* is used to ferment the mixture.

The resulting soft but solid cake tastes like popcorn, mushrooms, nuts, or even meat, when deep fried. Chemical analysis shows excellent protein content and higher concentrations of the important vitamins, niacin and riboflavin, than the mixtures had before fermentation. The process can be adopted to large-scale industrial production; or it can be performed in the home if the proper mould is provided.

The process was developed at the Northern Utilization Research and Development Division of the U.S. Government's Department of Agriculture, in Peoria, Illinois. Department scientists were aided in the research by specialists from Indonesia and Brazil.

It is an outgrowth of a standard method of preparing an Indonesian food called *tempeh*, which is made by fermenting soybeans with certain moulds.

Four Grants to Improve Foodstock

Four research grants totalling $143,789 awarded to Indian Universities by the U.S. Government early this month are expected to go a long way in the development of foodgrains production in this country.

The projects cover study of the ways of regulating plant growth and seed development, reclaiming idle land, and identifying leaf-hoppers that carry virus diseases from one plant to another.

To the University of Delhi goes a grant of $53,693 to study the growth, flowering, and seed production of plants.

Knowledge of how plants change from vegetative state to the reproductive one would allow scientists to manipulate the plants.

The University of Lucknow, in Uttar Pradesh, receives a grant of $23,386 to isolate and identify fungi, bacteria, and bacterial parasites in the alkaline soils of India, where large tracts of such land are barren.

A third research grant of $32,417 awarded to the Punjab Agricultural University at Ludhiana, calls for a five-year study of which species of leaf-hoppers carry virus diseases from one plant to another. When this is known, effective control methods can be devised, and agricultural production in India increased.

The fourth grant of $34,293 will assist the Department of Chemical Technology, University of Bombay, in its five-year project towards better utilisation of cottonseed oil.

AUSTRALIA

Continuing Research on Fruit

Many factors including orchard care, growing methods, harvesting, cooling and transport must be considered when fruit is being prepared for market.

Next to basic research on drugs and medicines, there is probably no more extensive scientific research on any edible item than on fruit, which must retain its freshness and flavour during the weeks of transport to the world markets.

This applies particularly in the case of fruit exported by sea from Australia—the longest trade route for fresh fruit in the world.

Large sums of money are spent in Australia on fruit research, because Australia exports apples and pears to more than 30 countries.

Apples and pears are grown in all Australian States. Opening first in Queensland, the apple season extends progressively south through New South Wales and Victoria to Tasmania. On the basis of quantity for export, Tasmania rates first, followed by Western Australia, South Australia, Victoria, Queensland and New South Wales.

From an average of 11 million bushels of apples produced in a year, Tasmania exports about six million bushels. The State's annual production of pears is more than 5½ million bushels, of which 1½ million bushels are exported.

Continual research by Government and State organisations has led to many improvements in the quality of apples and pears and in the presentation of fruit and care of orchards. By this means a consistently high standard of quality is maintained.

Scientists have travelled overseas with the fruit to study its reaction to climatic changes. It was largely as the result of their studies that ships carrying fruit from Australia were equipped with refrigeration to maintain an even temperature throughout the voyage.

On the heels of refrigerated fruit ships came experiments in pre-cooling. Investigators worked in cooling sheds testing certain varieties under varying temperatures, especially those known to be poor travellers.

The value of pre-cooling has now been established, and it is now compulsory for all pears and some kinds of apples, which must show a core temperature of no higher than 45°F. before being loaded.

Tasmanian agricultural experts consider that all fruits eventually will have to be pre-cooled.

Research has shown that harvest maturity must be regulated carefully. The size of the fruit, the cropping status of individual trees and even cultural practice influence the success of pre-cooling.

Tasmania's chief horticulturist (Mr W. F. Walker) predicts that within the next 10 years the entire Tasmanian export crop will be pre-cooled to ensure shelf life.

Increasing competition overseas has stressed the need for presenting fruit in the best condition, efficiently and attractively packed. With this in view, grading, packing and packages have been the subject of detailed research and study.

Financed by the Government, a staff of more than 100 is employed in investigating these problems, as well as in policing the strict export regulations. A current investigation, involving both research and experiment, is the bulk shipment of apples and bulk handling at the market end.

Its object is to determine whether this is more efficient and cheaper than using traditional case or fibre containers. Experimental shipments of apples to London in large bins suggest that bulk handling must play an increasingly important role.

One investigator even predicts that bins may also be discarded, and wrapped apples simply loaded into holds. At the port of discharge the fruit would be floated up by flooding the compartments with water.

In the research stations, constant experiments are proceeding in the form of pot

trials, using various strains of apples fed with varying amounts of nutrient. Fruit is also grown under heated conditions to determine growth rate and leaf and colour formation.

All this shows the extent of the contribution by science in research and experiment towards ensuring that the apple, at the appropriate season, is as good as your money can buy.

Patient Work lies behind Success with Strawberries

Years of intensive laboratory research and patient field work by experts from the State Department of Agriculture have given Victoria's ailing strawberry industry new life.

Ten years ago, growers at Silvan, Victoria's strawberry-growing centre, thought they were lucky to harvest ¾ ton of berries to the acre.

Today, crops of five tons to the acre are commonplace—some special crops yield 15 tons. And at the Department of Agriculture's Scoresby Research Station, near Melbourne, plantations are giving more than 20 tons an acre.

The growers now know there was nothing wrong with the soil or the climate. The destructive agent was a virus disease while to a lesser extent unsophisticated cultivation methods inhibited healthy plant growth and good yields.

The key to success is the Department of Agriculture's certified strawberry runners' scheme which provides farmers with virus-tested plants.

In 1948, Mr F. M. Read, now director of the Department, travelled overseas and as a result of his investigations, a number of varieties were imported during 1950-58. As required by the Australian Department of Health, these were grown in quarantine for lengthy periods until it was known they were free of virus.

The Department further checked the plants at the Victorian Plant Research Institute, Melbourne. It also set aside part of its Toolangi potato research station, outside Melbourne, as a growing area for production of runners from varieties which had passed the quarantine and tests.

The Toolangi site eventually became too small, so the Department authorised several local farmers to grow runners under departmental supervision. These plants were sold to other growers, who today pay about $A16 for 1000 runners.

Slowly but surely, farmers replaced the old virus-ridden plants with the clean varieties from imported stock.

During this period, Dr L. L. Stubbs, the Department's principal pathologist, spent 12 months at the University of California, and East Malling Research Station, Britain. The experience he gained in virus research gave the Department's local research greater purpose and effectiveness.

Growers freely accepted the Department's advice that fresh stocks of runners should be planted every two to three years to replace plants which had usually become virus-infected by that time.

The certified runners' scheme was introduced officially in 1963, following the successful operation of an approved runners' scheme.

Today, the scheme produces four million runners a year in 8 to 10 varieties.

One of the most promising is Red Gauntlet, with a yield of 22.4 tons an acre under special conditions and a high percentage (79 per cent) of marketable fruit.

Another is Grenadier, with a yield of 21 tons an acre.

Red Coat and Cambridge Vigour are other highly successful imported berries grown locally.

Another important development is the use of both black and clear polythene sheeting to aid growing.

In recent trials, black sheeting used as a mulch gave almost 100 per cent weed control.

Other advantages are earlier growth, cleaner fruit, and in many cases less fungus disease, as the berries and leaves are kept off decaying vegetable matter in the soil.

The use of clear perforated polythene covers to extend the picking period of strawberries is already in limited commercial use and is expected to increase, particularly for special growing.

Unlike the black sheeting, which is spread over the ground, the clear sheeting created 'hothouse' conditions.

Extensive field work by the Department of Agriculture on plant density has shown growers how they can increase yields by closer planting in certain conditions.

A few years ago most farmers were earning barely enough to cover production costs.

Now, the industry is thriving, with a surfeit of berries, and farmers are looking further afield for buyers of both fresh and processed fruit.

U.S.S.R.

India's Trade with Russia

The Indian delegation led by Shri Manubhai Shah, Minister of Commerce, had discussions from 5th July, 1966 to 9th July, 1966, with a Soviet delegation led by His Excellency Mr N. S. Patolichev, Minister of Foreign Trade of the USSR. The discussions covered the various problems and issues arising out of the decision regarding the devaluation of the Indian Rupee.

With regard to the current contracts entered into by both the sides before the 6th June, 1966, it was agreed between the two Governments to work on the following principles:

(*i*) No losses should be sustained by either side;

(*ii*) There should be no discrimination in respect of India's trade either with the socialist countries or with the rest of the world; and

(*iii*) Hardships to individual exporters and importers in both countries should be avoided so that the shipments of goods take place without any delay and in a smooth and satisfactory manner.

The prices and values of Indian export contracts with the Soviet Organisations had been indicated in Indian Rupee without any exchange variation clause and a specific provision that export duty should be paid by the Indian shippers. On the other hand, the contracts for exports from USSR to India contained generally a clause relating to exchange variation and ensured that though the contracts were expressed in rupees, the USSR exporter could demand 57.5 cent more in rupees from the Indian importer. However, as the trade between the two countries has been carried on in a most friendly and business like manner, the Soviet delegation agreed with the Indian delegation that some solution should be found to see that no undue hardship is caused to the Indian exporters. It was, therefore, agreed between the two Governments that all Indian shippers should be permitted to mark-up the rupee value of the unimplemented portion of their contracts by 47.5 per cent. This settlement has been universally welcomed by the Indian exporters and though on the surface it may appear as though this settlement is not exactly on a reciprocal basis, if it is remembered that USSR had all legal rights on their side and that the increase of 47.5 per cent was given

only as an ex-gratia relief to Indian exporters, it will be seen that the settlement has been quite fair to the Indian shippers. Besides, this increase will cover all additional charges such as export duty and other higher charges consequent on devaluation.

It was also agreed between the two Governments that individual cases of Indian importers or Soviet organisations experiencing any difficulty, both the Governments will use their good offices to resolve such cases of hardship so as to maintain the tempo of growing trade between the two countries.

It may further be added that the term 'unimplemented portions of contracts' will include the following:

(*i*) Payments due on shipments effected on or after the 6th June, 1966;

(*ii*) Payments due on or after the 6th June, 1966, under terms of deferred payment on earlier shipments; and

(*iii*) Payments due in full or in part on the 6th June, 1966, on earlier shipments for which documents were on that date in the process of negotiation or were sent already on collection basis.

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Trade Marks accepted by the Trade Marks Registry

Sl. No.	Name and address of Applicant	No. and Date of the Trade Marks Journal publishing the Trade Marks	Official No. of Trade Mark	Date	Products	Trade Mark
	M/s.					
1.	S. R. Cannery, 148, Attarsuiya Road, Allahabad, U.P.	410 1-7-1966	229,338	3-6-1965	Jellies of all kinds, jams, preserved, dried and cooked vegetable and fruit and vegetable extracts	S.R'S (Class 29)
2.	Unilever Limited, Port Sunlight, Cheshire, England	410 ,,	230,432B	27-7-1965	Preserved, dried and cooked fruits and vegetables	Miric (Class 29)
3.	Unilever Limited, Port Sunlight, Cheshire, England	410 ,,	230,433	,,	Preserved, dried and cooked fruits and vegetables	St. Bricet (Class 29)
4.	Bhagat Soda Water Factory, K. 57/47, Nawapura, Varanasi, U.P.	410 ,,	219,796	2-1-1964	Aerated Water	Bhagat's (Class 32)
5.	Paragon Drinks, Laljeetola, Patna 1	410 ,,	229,929	7-7-1965	Aerated drinks and aerated fruit juice beverages	Paragon Drinks (Class 32)
6.	Paradise Milk Products, Gulaothi, U.P.	411 16-7-1966	228,423	19-4-1965	Condensed milk	Golden Tower Condensed Milk (Class 29)
7.	Dabur Private Ltd., 142, Rash Behari Avenue, Calcutta	411 ,,	232,884	24-12-1965	Sauces	Paprisco (Class 30)
8.	Sir Gokul Chand Narang & Co. Pvt., Ltd., 3, Cavalry Lines, Delhi 7	411 ,,	228,228	8-4-1965	Beer and aerated waters	Gold Dagger (Class 32)
9.	Farrokh K. Irani, Krupalaya, Nazarbad, Mysore	411 ,,	223,919	21-8-1964	Tonic Wine	Efkay's (Class 33)
10.	Gopalan Food Products, Katra Medgaran, Khari Baoli, Delhi	412 1-8-1966	227,626	6-3-1965	Milk products	Gateway of India (Class 29)
11.	Madan Ice & Aerated Water Co., Astley Hall, Rajpur Road, Dehra Dun	412 ,,	232,211	10-11-1965	Aerated waters and other non-alcoholic drinks	Tepto (Class 32)
12.	Nitrox S. A., Via Nassa 17, Lugano, Switzerland	412 ,,	231,931	25-10-1965	Syrups and other preparations for making beverages	Nitrox (Class 32)

Government Notifications

- *Addressing of communications to the Import and Export Trade Control Organisation*
- *Import of capital goods and other items under national defence remittance scheme*
- *Customs Act 1962—Foodstuffs and provisions imported by foreigners*
- *Articles of Afghanistan origin*

Addressing of Communications to the Import and Export Trade Control Organisation

The following Public Notice (No. 107-ITC (PN)/66 dated the 19th July, 1966) has been issued by the Government of India in the Ministry of Commerce:

Attention is invited to paragraph 235 in Chapter XV of the Import Trade Control Hand Book of Rules and Procedure, 1966, wherein it is stated that the communications sent to the licensing authorities should contain brief details of the reference received from the licensing authority, the particulars of the goods sought to be imported and the I.T.C. classification of such goods.

2. It is noticed that a number of communications received by the licensing authorities do not contain the required particulars with the result that the disposal of the case is delayed. The applicants are, therefore, advised to give full particulars of their case in the communications addressed to the licensing authorities. The following may be deemed to have been added at the end of the said paragraph 235 of the Import Trade Control Hand Book of Rules and Procedure, 1966:

'The communication should also indicate its subject matter, the category of the importer, the type of the licence to which it pertains, whether it relates to the grant of a licence or amendment or revalidation thereof or an appeal, and it should also give the number and date of the relevant original application'.

Import of Capital goods and other items under National Defence Remittance Scheme

The following Public Notice (No. 109-ITC (PN)/66 dated the 23rd July, 1966) has been issued by the Government of India in the Ministry of Commerce:

Attention is invited to the Ministry of Commerce Public Notice No. 88-ITC (PN)/65 dated the 19th October, 1965, as amended, according to which applications under the National Defence Scheme could be made upto the 31st August, 1966.

2. It has now been decided to extend the last date for receipt of applications for import licences under the National Defence Remittance Scheme upto the 31st December, 1966.

Customs Act, 1962: Foodstuffs and Provisions Imported by Foreigners residing in India Exempted wholly from Customs Duty under certain conditions

The following Notification [G.S.R. 973 (No. 135/F. No. 8/31/66-Cus. VII Customs) dated the 20th June, 1966] has been issued by the Government of India in the Ministry of Finance (Department of Revenue and Insurance):

In exercise of the powers conferred by sub-section (1) of section 25 of the Custom Act, 1962 (52 of 1962), and in supersession of the notification of the Government of India in the Ministry of Finance (Department of Revenue and Insurance) No. 66-Customs, dated the 30th April, 1966, the

Central Government being satisfied that it is necessary in the public interest so to do, hereby exempts foodstuffs and provisions (excluding fruit products, alcohol and tobacco) imported by a person residing in India, not being a citizen of India, from the whole of the duty of customs leviable thereon:

Provided that the aggregate C.I.F. value of such foodstuffs and provisions so imported by any such person in a year shall not exceed:

(*i*) Rs 800 if no dependent relative lives with him; and

(*ii*) Rs 1,600 if a dependent relative lives with him.

Provided further that the importer secures the foreign currency required for importing such foodstuffs and provisions from the funds available to him in the foreign country.

Articles of Afghanistan Origin

The following Notification [G.S.R. 866 (No. 96/F. No. Bud (2) 66-Customs) dated the 6th June, 1966] has been issued by the Government of India in the Ministry of Finance (Department of Revenue and Insurance):

In exercise of the powers conferred by sub-section (2) of section 14 of the Customs Act, 1962 (52 of 1962) ,the Central Government hereby directs that the notification of the Government of India in the Ministry of Finance (Department of Revenue) No. 161-Customs, dated the 1st October, 1965, shall cease to have effect except in so far as the notification related to the following articles of Afghanistan origin, namely:

1. Almonds,
2. Pistachio nuts, and
3. Raisins.

Food Abstracts

Estimation of Tomato Solids by Determination of Lycopene, by O. B. DARBISHIRE, *Analyst*, 1965, **90**, 439-440.

The lycopene is extracted from 0.2 per cent aq. suspension of puree with light petroleum (b. p. 80-100°) and the extinction of the clear extract is measured at 505 mμ (1-cm. cell). Commercial purees from four countries ranged from 1070 to 2000 (mean 1420) p.p.m. of lycopene; standard deviation was 275 p.p.m. Thus, the lycopene determination gives only an approximate estimate of the tomato content of a food.

An Enzyme Process for Producing Sweet Potato Flakes from Starchy and Uncured Roots, by MAURICE W. HOOVER, *Food Technol.*, 1966, **20** (1), 84-87.

An enzyme process for producing sweet potato flakes from uncured and starchy roots presented. Freshly harvested roots of the Goldrush variety were washed, peeled, sliced, and cooked 25 min. in steam at atmospheric pressure. The cooked pieces were mashed in a pulper fitted with a 0.06 inch screen. Portions of the puree were treated with an amylolytic enzyme (Rhozyme S). The effects of enzyme concentrations, treatment time, and temperature on soluble solids content were determined. Of total conversion from water-insoluble to soluble solids in puree treated with 0.05 per cent enzyme, 90 per cent occurred within the first 30 min. Samples of puree containing 0.025 and 0.0125 per cent enzyme respectively attained 90 per cent of full conversion to soluble solids within 45 and 60 min. Flakes were produced from puree through a system of adding back a portion of the enzyme-treated material to untreated. The drying characteristic of the product improved as the water-soluble solids in the flakes increased up to about 80 per cent. Flavour, texture, and appearance of the flakes improved as the amount of enzyme-produced soluble solids increased.

Acidification of Canned Tomatoes, by LEE W. PRAY, AND JOHN J. POWERS, *Food Technol.*, 1966, **20** (1), 87-91.

Citric, fumaric, and malic acids as acidulents for canned tomatoes lowered the pH effectively. Succinic acid was also effective but imparted undesirable taste characteristics at higher levels of use. Fumaric acid was most effective among all the acids in lowering pH, and adipic acid was least effective. The acids tended to yield lower pH levels when the tomatoes contained added salt than when they did not. Among citric, fumaric, and malic acids, no one acid was superior to the other two in organoleptic qualities imparted to the tomatoes. The acids were rated less sour when salt was added than when it was absent. Texture ratings and drained weight were not significantly correlated. Water-soluble, Calgon-soluble, or NaOH-soluble pectic fractions were not significantly correlated with drained weight or pH level. The acids accelerated *corrosion* of the cans some, but not excessively.

The Effects of Gamma Radiation on Bananas, by W. E. FERGUSON, A. R. YATES, K. F. MACQUEEN, AND J. A. ROBB, *Food Technol.*, 1966, **20** (2), 105-107.

Anthracnose spoilage in bananas inoculated with spores of *Gloeosporium musarum* was markedly retarded by gamma radiation does of 150 Krad or higher. Organoleptically, bananas irradiated in a well ventilated chamber compared favourably with control fruit. Colour, flavour and texture developed fully, though more slowly with increasing doses. On the other hand, bananas irradiated in small, closed chambers showed

extensive skin-splitting and discolouration and, in some instances, failed to ripen fully. This is attributed to ozone rather than to radiation damage. No visible damage to fruit was noted from radiation *per se*.

Development of a Radiation Process for Some Indian Fruits: Mangoes and Sapodillas, by S. D. Dharkar, K. A. Savagaon, U. S. Kumta, and A. Sreenivasan, *J. Food Sci.*, 1966, **31** (1), 22-28.

A combination heat-radiation process has been evolved for sterilizing mango and sapodilla in cans. The fruit, after peeling and slicing, is packed in sanitary cans with sucrose syrup, and the respiratory enzymes are inactivated by heating for 10 min. at 70°C. The cans are next evacuated for 6 min. at a vacuum of 28 inches Hg, vacuum double-seamed, and irradiated with a total dose of 4×10^5 rads at room temperature.

Organoleptic evaluation, vitamin retention, and sterility tests show that these processing conditions are optimum and give an acceptable product. Canned mangoes showed progressively lower acceptability with radiation doses above 4×10^5 rads, compared to thermally processed product. Sapodillas, on the other hand, did not show appreciable deterioration up to 1.2×10^6 rads.

Volatile Components in the Vapours of Natural and Distilled Vinegars, by L. W. Aurand, J. A. Singleton, T. A. Bell, and J. L. Etchells, *J. Food Sci.*, 1966, **31** (2), 172-177.

Volatile components in the vapours of natural and distilled vinegars were identified by gas chromatography by comparing their retention volumes with compounds of known composition and by functional group analysis. Twentyfive volatile components were identified from three natural vinegars (cider, 19 components; wine, 17 components; tarragon, 20 components), and 11 volatile components were identified from five samples of distilled vinegar. Four components were present in all vinegars tested: acetaldehyde, acetone, ethyl acetate, and ethyl alcohol. The natural vinegars had the largest number of volatile components. This was attributed to the nature of the fermentable carbohydrate material used for production of the alcohol subsequently used for vinegar manufacture (e.g., apples and grapes). The importance of the carbonyls, alcohols, and esters to vinegar flavour is discussed.

Texture and Pectin Changes in Canned Apricots, by B. S. Luh, and K. D. Dastur, *J. Food Sci.*, 1966, **31** (2), 178-183.

The influence of ripeness level, heat processing and post-canning storage on texture and pectin changes in canned apricots was investigated. Important factors influencing canned texture were ripeness level of the fresh fruit and processing time. The canned product gradually softened during storage, while water-soluble pectin in the syrup increased and protopectin in the fruit decreased. Ripe apricots contained less protopectin, and the syrup derived from them contained more water-soluble pectin. Syrup viscosity gradually increased during storage of canned apricots. The characteristics of pectin were related to the texture of canned apricots.

Determination of 2, 6-dichloro-4-nitro aniline Residues in Fruits by Electron-Capture Gas Chromatography, by Kin Wa Cheng, and Wendell W. Kilgore, *J. Food Sci.*, 1966, **31** (2), 259-261.

A procedure for the analysis of 2, 6-dichloro-4-nitroaniline by electron-capture gas chromatography is described. In this technique, samples are extracted with benzene and analysed in a gas chromatograph without involving any additional

clean up procedures. It is applicable to a variety of stone fruits, and as low as 0.01 p.p.m. of residue can be detected.

Measurement of Food Texture by a Universal Testing Machine, by M. C. Bourne, J. C. Moyer, and D. B. Hand, *Food Technol.*, 1966, **20** (4), 170-173.

A commercial machine that measures compressive and tensile properties of materials was adapted as a research tool to study the rheological properties of food materials. A strip-chart recorder that is an integral part of the machine draws a force-distance curve for every test. The working parts of most texture-measuring devices used in the food industry can be used in this machine. Some examples are given of the manner in which the force-distance curves are used to obtain maximum force, slope, area, plateau height, relaxation, and recovery, and the application of these parameters to different food products.

Storage Studies on Foam-Mat-Dried Grapefruit Powder, by Robert E. Berry, Owen W. Bissett, Charles J. Wanger, Jr., and M. K. Veldhuis, *Food Technol.*, 1966, **20** (4), 177-178.

Grape fruit powders made on a belt-type foam-mat dryer under different conditions of drying time and temperature were compared for relative storage durability.

The samples were first dried at 70°F with 'inpackage' desiccants to about 1 per cent moisture level. Relative storage durability was determined by repackaging and storing at 0, 70, and 85°F. Samples were then compared with controls in triangular taste tests. The earliest significant detectable differences were at 38 weeks at 70°F and at 12 weeks at 85°F. These samples would probably have a storage life of six months to a year under normal handling conditions.

Instant Applesauce, by M. E. Lazar, and A. I. Morgan, Jr., *Food Technol.*, 1966, **20** (4), 179-181.

High-quality instant applesauce flakes which reconstitute in cold water were made from six varieties of apples with a modified atmospheric double-drum dryer. Vapours evolved during drying were rapidly removed from both above and below the drums. A jet of chilled air was directed at the product film on the drums just before the films reached the doctor blades. A variable-speed reel metered the dry product sheet off the drums and permitted control of final flake thickness. Product was collected in a dry air zone. Equilibrium moistures and sticky points are presented.

Vacuum Puffing and Dehydration of Potato, by K. E. Eapen, and P. K. Ramanathan, *Food Technol.*, 1966, **20** (4), 191-193.

A technique was developed to impart a porous structure to potato pieces. The potato pieces were prepared in the conventional manner and cooked. The cooked pieces were subjected while hot to a high vacuum for a short period. The instant flashing of water vapour from within the pieces creates a porous structure which promotes quick dehydration. The dried product of porous structure rehydrates on 5 min. of boiling in water.

Effects of Agitation and Temperature in the Deep-Fat Frying of Potatoes, by H. Strock, C. O. Ball, S. S. Chang, and E. F. Stier, *Food Technol.*, 1966, **20** (4), 193-196.

To ascertain the effects of temperature and agitation on deep-fat frying of potatoes, preliminary work was conducted to determine a constant or a time of 'doneness' of the fried product. It was thought that internal temperature of the potato reached 216 to 220°F after a frying period of 2½

min. and remained there throughout the frying period. This occurred at all frying temperatures used.

Acceptability tests of the finished product by a trained laboratory panel, however, showed the times of 'doneness' to be 9½ min. at 340°F, 8 min. at 365°F, and 6½ min. at 390°F. Percentage yield and moisture content of the fried product were approximately the same at these three end points. The fat contents, however, were not in agreement with the moisture-yield curves as the increase in fat absorption was relatively small in the temperature range of 340-390°F.

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- *Dr A. N. Ghosh*
- *Mr M. Sreenivasa Rao*
- *Mr K. C. Nair*
- *The Coca-Cola Export Corporation*
- *M/s. Poysha Industrial Co. Ltd.*
- *M/s. A.P.V. and Kestner*
- *M/s. Darlco Cannings Ltd.*

Dr H. A. B. Parpia

Dr H. A. B. Parpia, Director, Central Food Technological Research Institute, returned to Mysore on 3rd September, 1966, after a five-week visit to Hamburg, Geneva, Warsaw and Rome where he had gone to participate in international conferences on food science and technology.

Dr Parpia attended the Seventh International Congress of Nutrition held at Hamburg from August 3 to 10, and presented a paper on Role of Food Technology in Improving the Level of Nutrition in Developing Countries.

Dr Parpia represented India at the meeting of the Protein Advisory Group, a joint organization of FAO, WHO and UNICEF, which was held at Geneva from August 17 to 19.

At the Second International Congress of Food Science and Technology held at Warsaw from August 22 to 27, Dr Parpia was the Chairman of the session on the economic, sociological, and nutritional aspects of food production. He also presented a paper on Protein Foods for less Developed Countries at the Congress. At Warsaw, he was the guest of the Polish Government.

Later, Dr Parpia attended the meeting of the International Advisory Committee of the International Food Technology Training Centre at Rome on August 30 and 31. The work done by the International Training Centre which the Central Food Technological Research Institute, Mysore, is helping to run for FAO in collaboration with Canadas 'Freedom from Hunger Foundation' was appreciated by the members. They also expressed their appreciation over the number of personnel from South and South-east Asia who were provided training at the Centre and acknowledged that the course was well oriented towards solving the problems of food industry in the region. The Advisory Committee decided to accept students from developing countries in other regions of the world also with a view to widening the base of the training programme.

Dr A. N. Ghosh

Director-General Designate ISI

Ghosh, Dr Amlendra Narayan; *b.* Mhow (M.P.) 10 January 1911; *s.* B. B. Ghosh; *Education:* M.Sc., Calcutta University; D.Sc., Munich (Germany). *Research Work:* Complex Selenito and Selenito Complexes of Cobalt, Nickel and Copper, Master of Science Thesis; Unorganische Chromatography in two parts, Thesis for Doctorate Degree of the

University of Munich. *Professional Membership:* Fellow of Institution of Chemists (India) since 1954; Member, Indian Institute of Metals since 1954; Member, Chemical Research Committee (CSIR), 1955-61; Member, Executive

Committee, Central Mines Research Station (Dhanbad) of CSIR, 1959-62; formerly Member of Mining, Metallurgical and Geological Society (India). *Positions Held:* 1940, Analyst, Calcutta Municipal Corporation; 1940-46, Deputy Chief Assayer, H. M. Mint, Bombay (now India Government Mint); 1946-48, Research Metallurgist, Indian Standard Metal Company, Bombay—In-charge of Research Development Programme of the Company and responsible for setting up Metallurgical Research Laboratory; 1948-53, Director, Metallurgical Research and Planning, Government of the Union of Burma—responsible for setting up of Union's Metallurgical Department and planning of metallurgical development in Burma; 1953-56, Director, Government Test House, Alipore; 1956-66, Deputy Director-General, Indian Standards Institution (ISI); from 3 Sept. 1966, Director-General, ISI. *Travels Abroad:* Canada, Australia, Germany, France, Poland, Greece, Switzerland, United Kingdom, United Arab Republic, Thailand. *Languages Known:* read, write and speak fluently: Bengali, English, German; read and speak: Hindi. *Publications:* many research papers, articles, etc., on chemical engineering, metallurgy, testing and standardization. *Address:* Director-General Designate, Indian Standards Institution, Manak Bhavan, 9 Bahadur Shah Zafar Marg, New Delhi 1.

Mr M. Sreenivasa Rao

Mr M. Sreenivasa Rao, Director, Kissan Products Limited, Bangalore-Bareilly, and Darlco Cannings Limited, Bangalore-Trichur, visited U.K. and the continent on export promotion from 7th May, 1966 to 28th June, 1966.

Mr Sreenivasa Rao passed B.Com. of Mysore University in 1950, with distinction and is a Gold Medallst. He has also passed D.I.I.Sc. of Indian Institute of Science in 1960.

Mr Sreenivasa Rao is Secretary, United Breweries Ltd., Bangalore and Director, Mysore Wine Products Limited and High Range Breweries Ltd. He is Chairman, Local Chapter of Cost Accountants, and Member, Southern Regional Council of the Institute of Cost & Works Accountants.

Mr Sreenivasa Rao conducted an extensive brand promotion campaign for processed fruits and vegetables with particular reference to canned Mango products and Indian style vegetables in U.K., France and Italy.

In addition, he studied the organisational and administrative set up and group accounting in Schweppes (Overseas) Limited, London. He visited the factories of L. Rose & Co. Ltd., St. Albans; Schweppes Limited, Sidcup and Hendon; and Chiver Hartleys Limited, Histon.

Mr K. C. Nair

Mr K. C. Nair, Sales Manager, Pure Products and Madhu Canning Ltd., Bombay, visited England, France, Germany, Netherland, Switzerland and Italy for export promotion from 12th July to 15th August, 1966.

According to Mr Nair, India does not enjoy even an infinitesimal portion of the trade in processed foods in the countries visited by him. There is plenty of scope to offer a number of specialities in tropical varieties of fruits and vegetables. He attributes the failure to shoddy and unattractive packaging; lack of advertising and product knowledge pertaining to Indian products; high cost of production resulting in high selling prices and unhealthy competition.

The quality of our products is acceptable to the foreign consumers.

He suggested that Indian Mission abroad should give all possible help to the trade representatives visiting abroad.

The Coca-Cola Export Corporation

Though Coca-Cola is rapidly gaining popularity as the leading carbonated beverage in India, very little is generally known about the organization and the men behind the product.

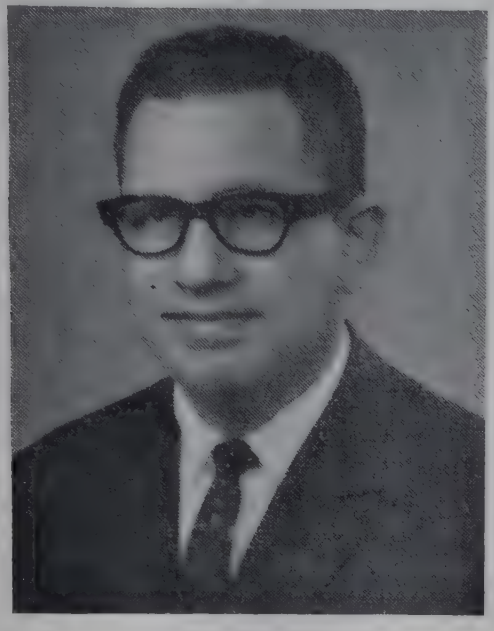
The actual bottling and marketing of the product is done by various independent bottling companies entirely owned, financed and managed by independent Indian businessmen. At present, there are seven such companies located in Ahmedabad, Bombay, Calcutta, Goa, Kanpur, Madras and New Delhi.

Coca-Cola Concentrate used in the preparation of the final beverage is manufactured in India by the local branch of The Coca-Cola Export Corporation, New York. They also manufacture Fanta Beverage Base used in the preparation of Fanta Orange now being marketed in Ahmedabad, Bombay, Goa and New Delhi.

Coca-Cola Concentrate and Fanta Beverage Base manufactured in India are also exported in large quantities. Actually, the total quantities of these items produced for export exceed the production for domestic consumption to make the Company a notable contributor to the national foreign exchange earnings. During 1964/65, Coca-Cola Concentrate worth Rs 60 lakhs was exported from India. The 'first' export of Fanta Beverage Base has taken place and orders of Rs 18 lakhs are to be executed shortly.

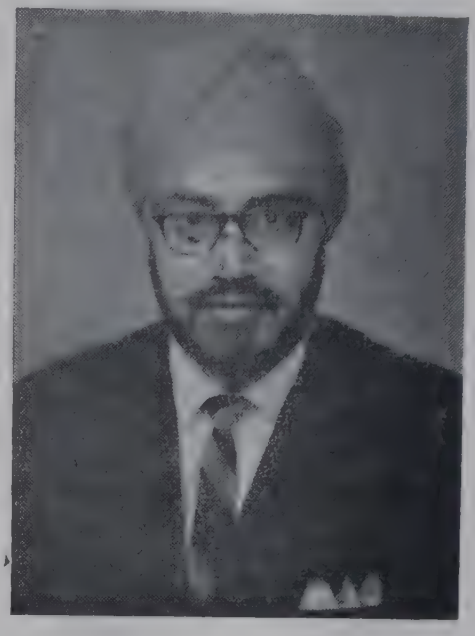
The Company's activities in India extend beyond the manufacturing operation to

provide co-operative assistance to their Authorised Bottlers throughout the country in the field of marketing, production and quality control. The Company has a well-trained staff specialising in each of these fields. Mr Kisan K. Mehta was named the General Manager of the Indian Branch in 1964 and, with this appointment, the entire local organization was completely Indianized.



Mr Mehta joined the Company in the United States immediately after graduating from the Massachusetts Institute of Technology in 1950 with a Master's Degree in Chemical Engineering. He returned to India in 1951 to assume charge as Regional Chemist. Subsequently, he was named the Technical Manager, then District Manager, and finally Assistant Manager before accepting the present responsibility.

Dr D. S. Bhatia is presently the Company's Technical Manager in India. Also an alumnus of the MIT, he is a noted food scientist. Before joining the Company, he was an Assistant Director of the Central Food Technological Research Institute, Mysore.* His abilities in the field of food technology have won recognition beyond India through international assignments from FAO, an agency of the United Nations.



Under Dr Bhatia's technical guidance, The Coca-Cola Export Corporation in India hopes to make a significant contribution towards new product development particularly with an eye to the export market.

* Dr Bhatia is Convener of the Technical Advisory Committee of the All-India Food Preservers' Association.

Poysha Industrial Company Limited

The Ninth Annual General Meeting of the Poysha Industrial Company Limited, Bombay, was held on 31st August, 1966, under the chairmanship of Mr M. R. Ruia.

Sales

Sales during the fiscal year 1965-66 increased from Rs 1.84 to 2.16 crores.

Expansion Programme

The factories at Thana and Ghaziabad are nearing completion and full production is expected to commence at Thana before the beginning of the next year and in Ghaziabad in the last quarter of this year. The Cochin factory will go into production before the end of this year. Their subsidiary,

Colrige Ltd., is being transferred from Sewri to Thana. The other subsidiary, Kaira Can Co. Ltd., Anand, Gujarat, is under erection. The existing factory at Sewri will also continue to be used for the time being.

Negotiations for setting up a first-class laboratory and training of personnel abroad are going on with their West German collaborators M/s Lubecawerke.

Devaluation

Mr Ruia explained at length the repercussions of devaluation on the cost of production of tin containers. He observed that in some cases the cost of average open top can alone is, in India, higher than the total cost of a similar can and its contents in the U.S.A. He suggested that the Government should either issue import licences for procurements from the cheapest sources or subsidise the use of tinplate for open top cans, if the tin can is to survive as the prime container for food or processed food. In the existing food situation in the country, attempts should be made to enlarge the canning industry to preserve bulk of the foodstuff (vegetable, fruit, etc). It is essential that action should be taken by Government to ensure that the tin container reaches the canner at a price which enables him to sell his canned foodstuff at a reasonably competitive price, not only in the internal market but also in the export market.

New lines

The manufacture of paper and plastic containers by the Company is under active consideration and will be taken up when their new factories are ready.

A. P. V. and Kestner

The Directors of A.P.V. Holdings Limited announce that the Company has acquired the whole of the issued share capital of the Kestner Evaporator and Engineering Company Limited at the price of £267,000 which has been satisfied by the issue credited as fully paid of 100,000 Ordinary Shares of 10s. each of the Company and the balance of cash.

The association of these two well known Companies provided an opportunity for an expansion and improvement in the A.P.V. Group's services to the chemical industry and responds to the view held by leaders of that industry that such rationalisation between chemical plant manufacturers is highly desirable.

To A.P.V.'s facilities for fabrication in corrosion resistant metals, the Kestner Company will add its construction in Keebush, Keeglas and other plastic materials. The wide range of A.P.V. process plant including distillation and heat transfer equipment will be augmented by Kestner's driers, pumps, crystallisers, mixers and process heating, together with the Tantiron range of silicon iron castings, fittings, valves and pumps.

The process engineering and plant manufacturing activities of the two Companies are complementary with both having extensive experience in the field of evaporation, and this combination will provide the most comprehensive service on evaporation available in the United Kingdom.

To the substantial export activity of the A.P.V. Group which is on a world-wide basis will be added this wide range of Kestner equipment for which there is a good export potential. The Kestner Company has well established organisations in Australia, South Africa and Belgium, which will increase the already extensive interests of the A.P.V. Group overseas.

The present management of the Kestner Evaporator and Engineering Co. Ltd. continues, and Mr P. W. Seligman, Chairman, and Mr H. P. N. Benson, Deputy

Chairman and Managing Director of A.P.V. Holdings Limited will be joining the Board of Kestner.

Darlco Cannings Limited

Darlco Cannings Limited, Old Madras Road, Bangalore 16, a subsidiary of United Breweries Limited, Bangalore, has been sanctioned to issue Bonus Shares for Rs 1,20,000 by capitalising the Reserves to that extent. The shareholders will be given at the rate of one Bonus Equity Share for every Equity Share held by them.

Weikfield

PIONEER HOUSE
OF EDIBLE SUPRA

FOOD COLOURS

Now presents

WEPCOL

Permitted, harmless, food colour mixtures in 2 ranges:

ZX series in 11 colours

ZX series in 11 colours for Canned and Processed Food, Pharmaceuticals and Aerated Waters

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XXX series in 3 colours

for sweetmeats like Ladoo, Jilebi, Gulabjam etc.
• Ladoo Yellow Special
• Jilebi Orange Special
• Keshar Special.

Attention Sweetmeat makers:

Ask Weikfield stating your requirements, for allotment of yearly quota.

WARRANTY

WEPCOL XXX and ZX series are included in the lists of permitted food colours for use in India under the Prevention of Food Adulteration Rules.

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Saying it is easy. Making it from buffaloes' milk wasn't. There were problems. Like slow ripening. Lack of control over "body" and flavour.

It took us 3 years to solve these problems. Three years of solid work at the Kaira Co-operative's research laboratories.

Finally we did it—by modifying the usual cheese-making process. AMUL CHEESE was worth all the effort and time spent on it.

The next time you're photographed, don't be surprised if you think of AMUL when you say "CHEESE".

KAIRA CO-OP.
where milk has
worked a miracle

CMKMP-49

when energy flags

fortify with GUAVA JUICE

TP-5.62

Hard work drains energy. A good fortification against fatigue is Tims Guava Juice because it contains vitamin C in abundance. This vitamin also helps resist infection and build body.

Human system can store up some of the vitamins but not vitamin C. A daily intake of vitamin C is therefore necessary for balanced health.

Your Doctor will tell you that Guavas are the richest source of natural vitamin C—many times more than citrus fruits like orange. A higher percentage of this vitamin is stable in Guavas than in oranges. Consequently more of it is retained after processing and canning and during shelf life. Taken daily Guava Juice will nourish your system with the essential vitamin C and build up a healthy body.

Make Guava Juice a daily habit

TIMS

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Poysha containers bring it to you

Paints and dyes. Food and pharmaceuticals. Vegetable and mineral oils. Things you need and use every day. They all come to you in protective Poysha containers—with their original quality intact.

Quality and service always come first with Poysha. It's the second largest container maker today, making eight times as many containers as it did nine years ago. To serve you even better, it has already launched an ambitious expansion plan. When 3 its new factories start production before the year-end, Poysha will make 5 containers for every 2 it makes now. Will offer better technical advice and service to Indian industries. A wider range of packaging materials, too. Plus all the advantages of multi-plant operation. It'll meet the needs of the country's key centres individually. Cut canning and transport costs. And, ensure prompter deliveries and on-the-spot service. All this to help bring you more and more of the better things you need—in Poysha containers.

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CM/7/35A

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different...

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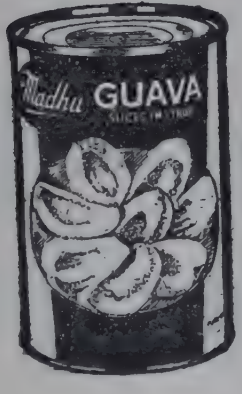
Nectar : Mango Nectar, Guava Nectar, Papaya Nectar, Tomato Juice.

Vegetables : Karela in Brine, Okra in Tomato Sauce, Tinda in Brine, Baked Beans in Tomato Sauce, Parwal in Brine, Kantola in Brine, Brinjal in Brine.



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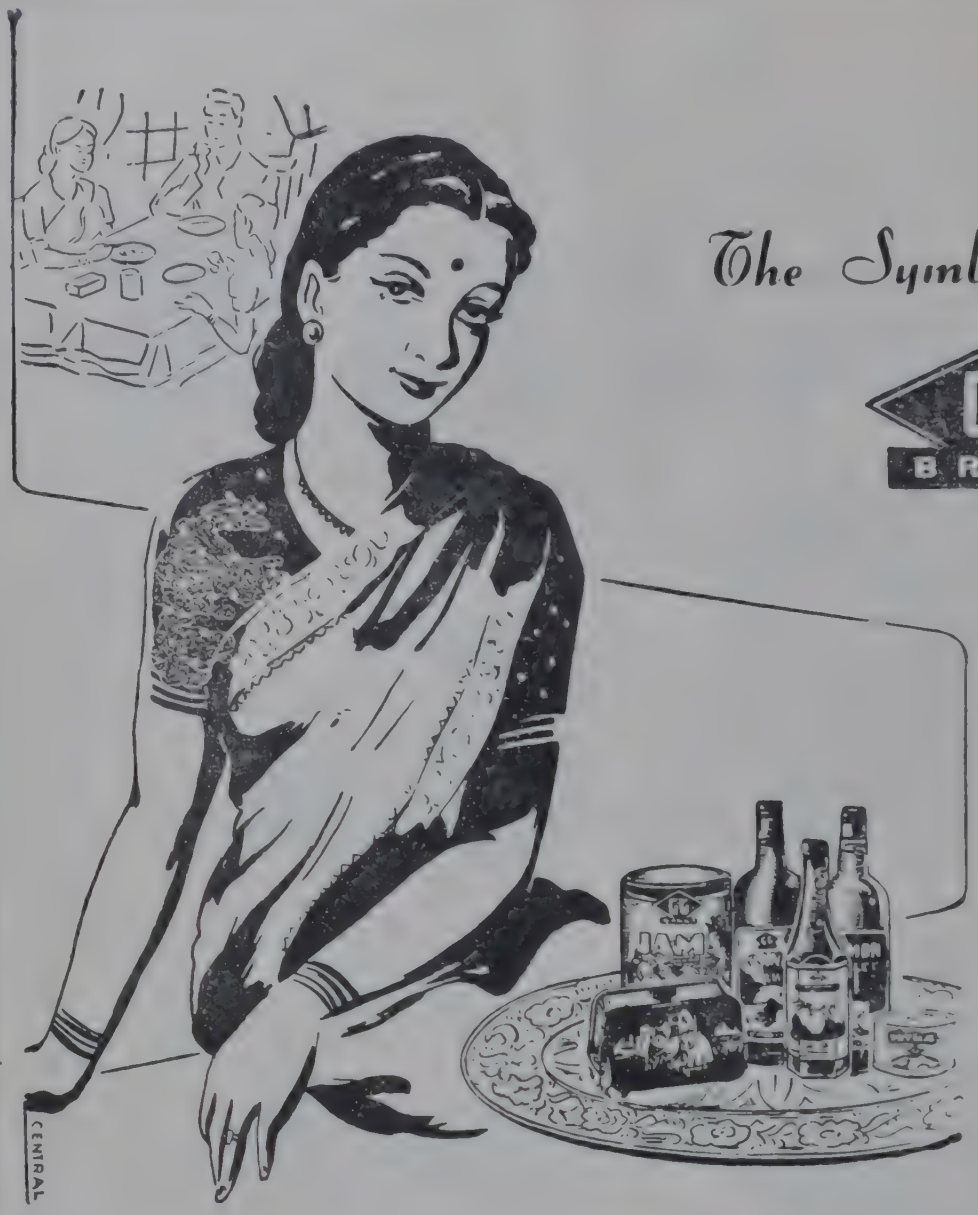

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- ★ TOMATO SAUCE
- ★ MANGO CHUTNEY
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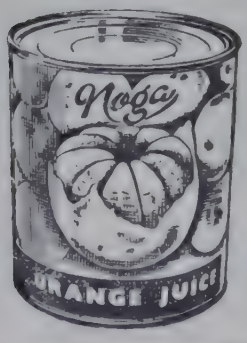
Drink Coca-Cola...Be really refreshed

LIVE WITH ZEST Life looks brighter—you'll feel gayer—after the first sip of Coca-Cola. It's wonderful zest refreshes as nothing else can. Yes—in all the world—nothing gives you the wholesome sparkle of Coca-Cola.

ठण्डा और स्वादिष्ट पेय

ठण्डे डिब्बों में रखे हुए नोगा आरेंज और टोमाटो के ज्यूस—याने ठण्डे और स्वादिष्ट पेय। मेहमानों की खातिरदारी में...भोजन के समय...या थकावट दूर करने के लिये इनकी बराबरी नहीं हो सकती। इनमें विटामिन भी भरपुर हैं। दोनों ने ही १९६४ की अखिल भारतीय नींबू और सब्जी प्रदर्शनी में प्रथम पुरस्कार प्राप्त किये हैं। नोगा आरेंज ज्यूस और मैंगो नेक्टर ६ः औंस के छोटे डिब्बों में मिलते हैं। नागपुर के बेहतरीत फलों का स्वाद लीजिये।



Noga

आरेंज·टोमाटो ज्यूस

मैंगो नेक्टर

स्वाद में अद्वितीय—गुण में अद्वितीय

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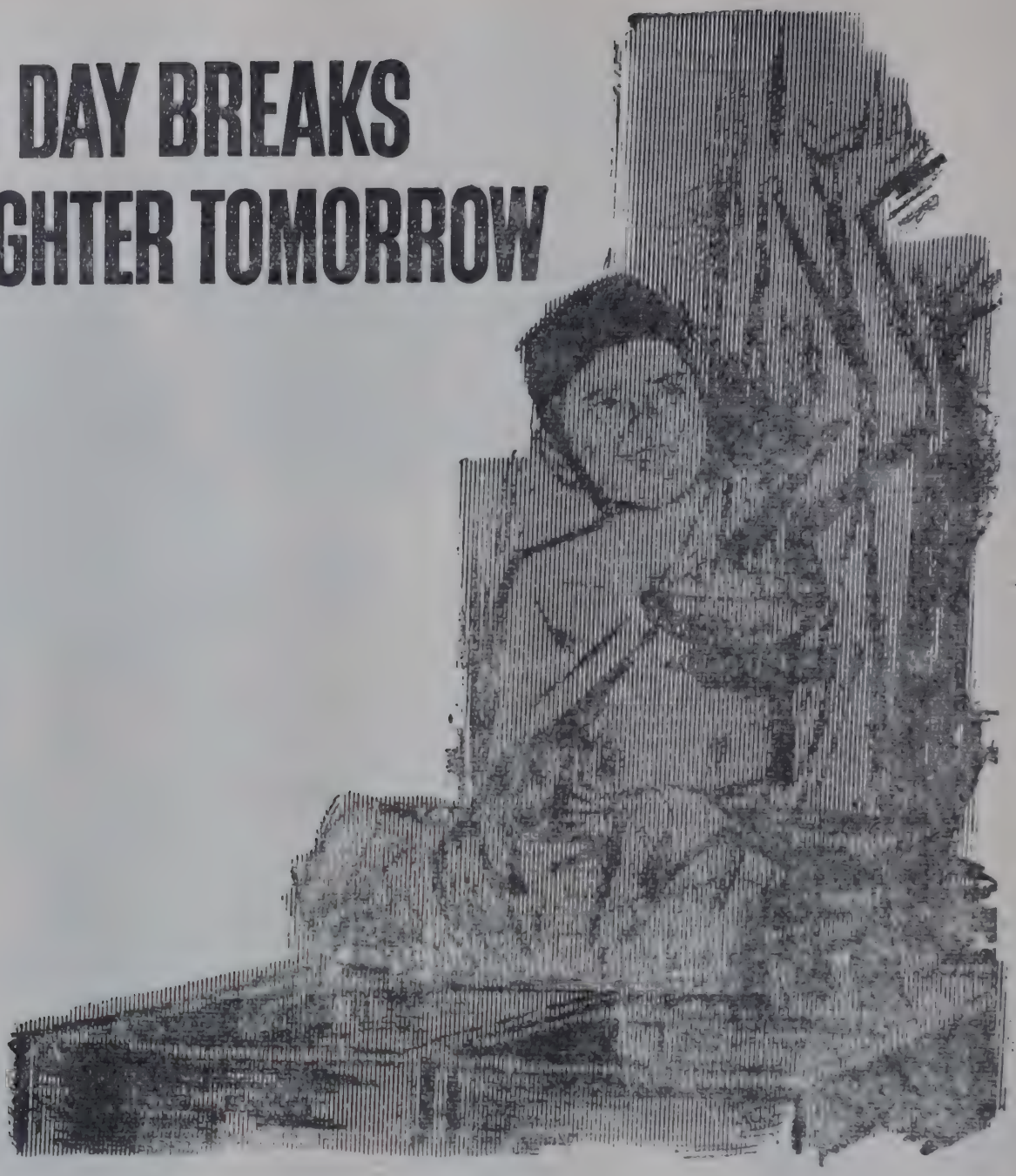

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(INDIA)

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MYSORE

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AFFILIATED TO THE INSTITUTE OF FOOD TECHNOLOGISTS, USA

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1. To stimulate scientific and technological research on various aspects of Food Technology.

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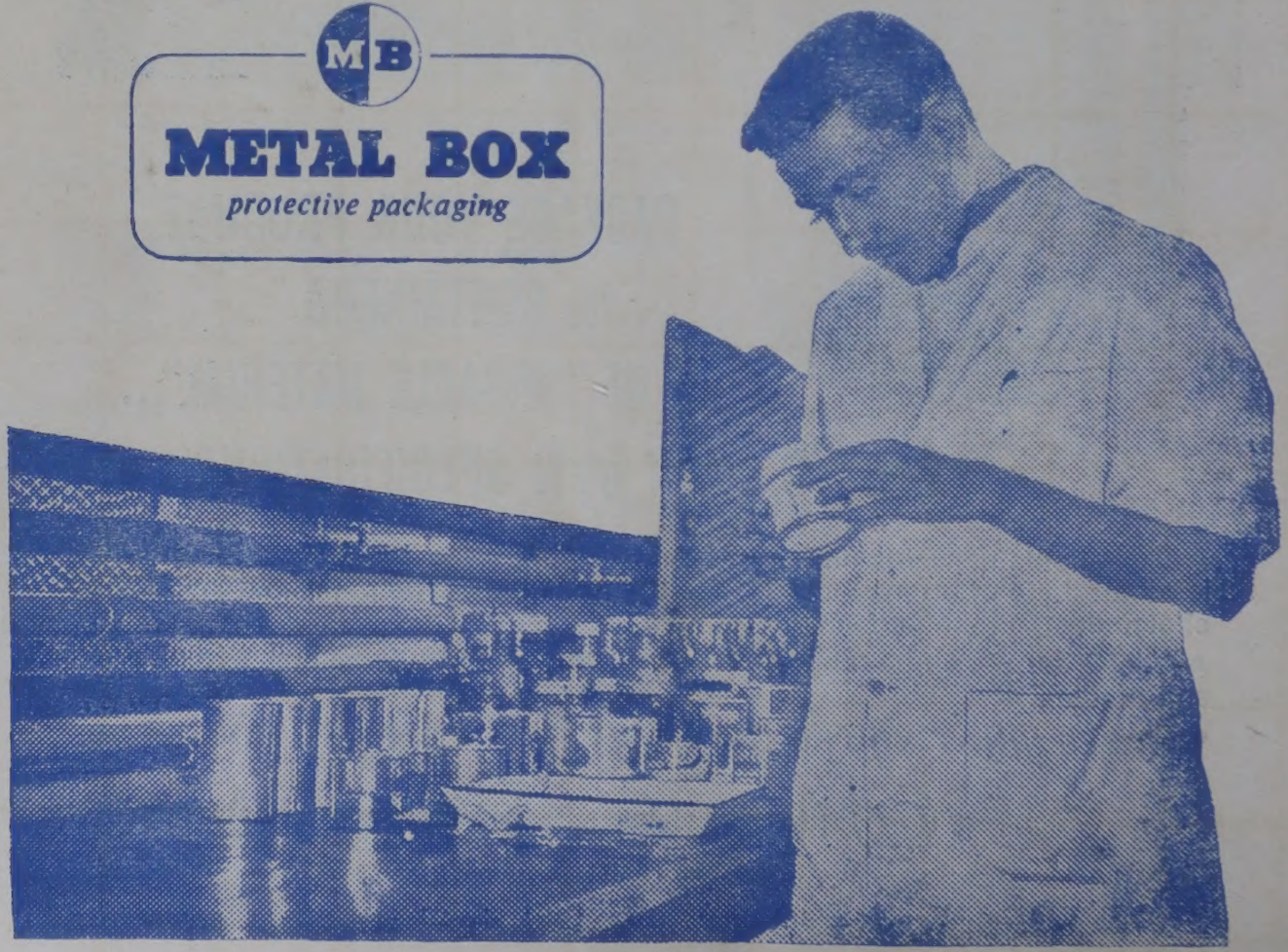

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